



The Internet of Things: Insurance in the Age of the “Sharing” and “On Demand” Economy

Annual Circle of Chief Economists

The Geneva Association

The Hague, Netherlands

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Download at www.iii.org/presentations

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TECHNOLOGY, DISRUPTORS AND INSURANCE

**Applications of Technology in P/C
Insurance Have Gripped the Media as
Have Industry Solutions**

Interest in Technology Issues and Insurance Is Surging: Presents Opportunity

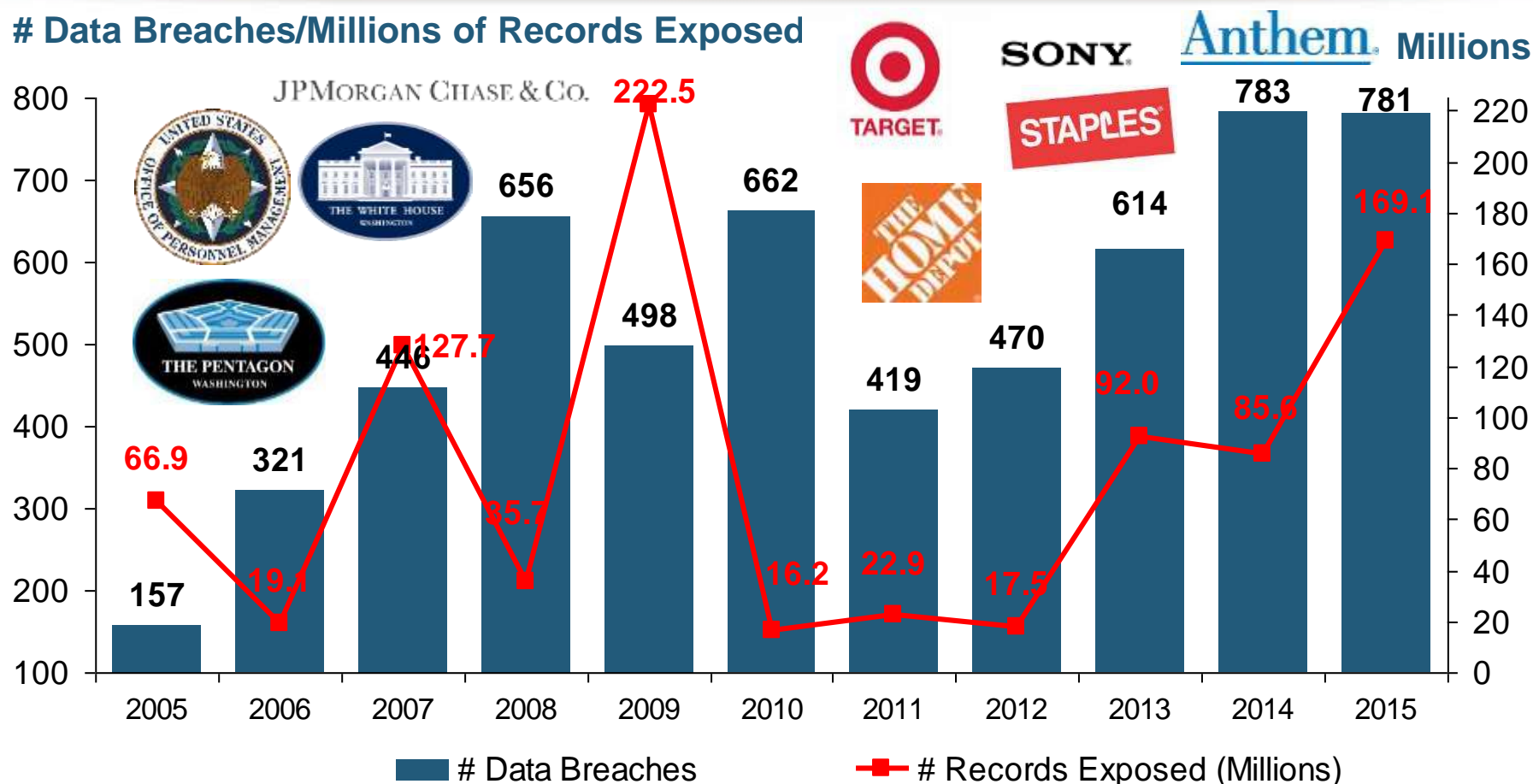
- Insurers are at the intersection of many of the most important technological innovations of the early 21st century
 - ◆ Problem→Solution→Opportunity
- Industry is too often depicted as a technology laggard
- I.I.I. is highlighting the industry as being on the technological cutting edge—an innovative, nimble industry with solutions for managing countless new risks of the current era:
 - ◆ ***Sharing economy*** Cyber Auto Technology
 - ◆ Supply Chain Climate Risk Drones
 - ◆ Wearable devices ***The “Internet of Things”***
- Positions industry well with customers, investors, current and prospective workers/Millennials, regulators/legislators and (tech) media

CYBER RISK AND INSURANCE

**Cyber Risk is a Rapidly Emerging
Exposure for Businesses Large and
Small in Every Industry**

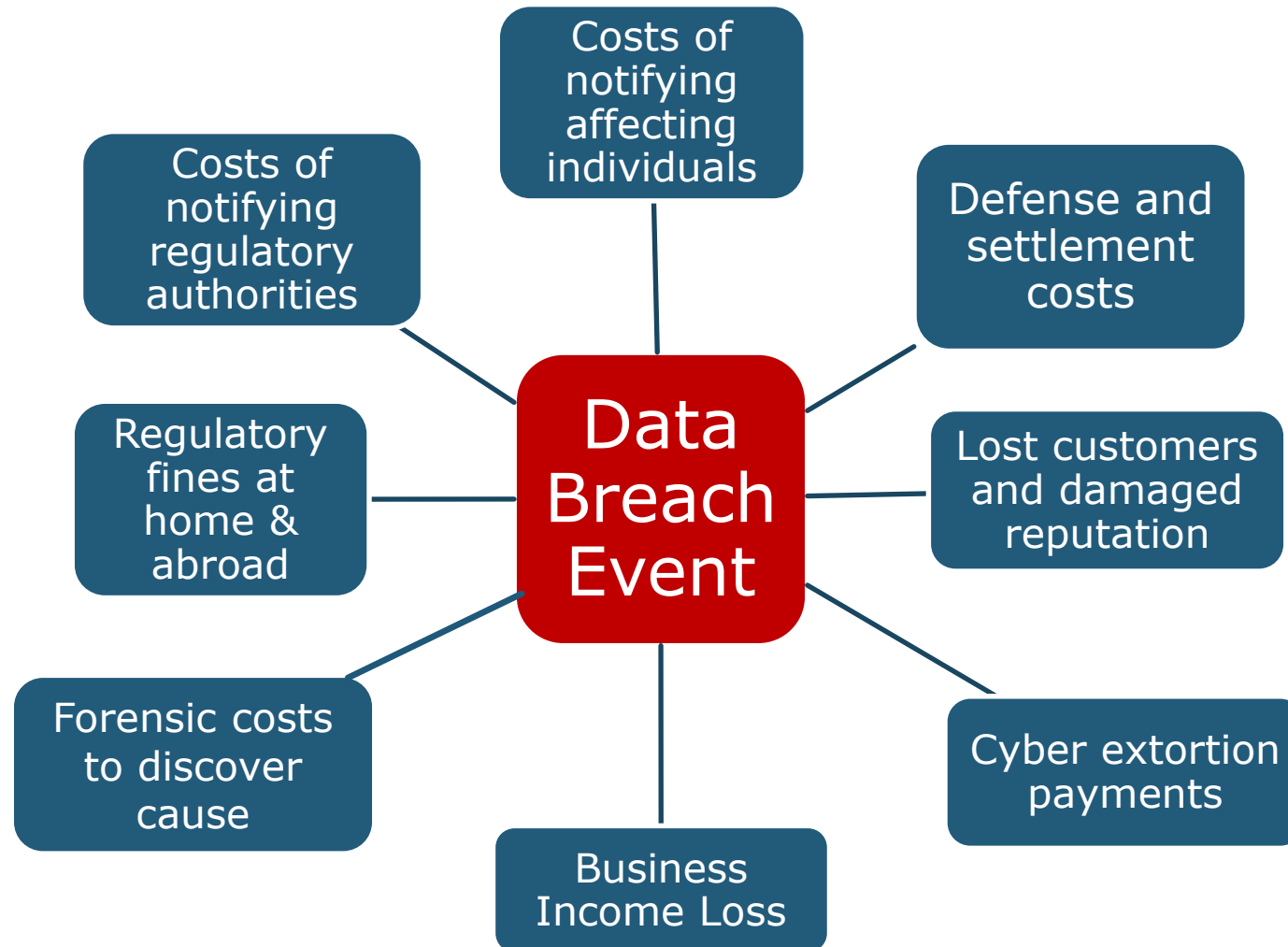
Data Breaches 2005-2015, by Number of Breaches and Records Exposed

Data Breaches/Millions of Records Exposed



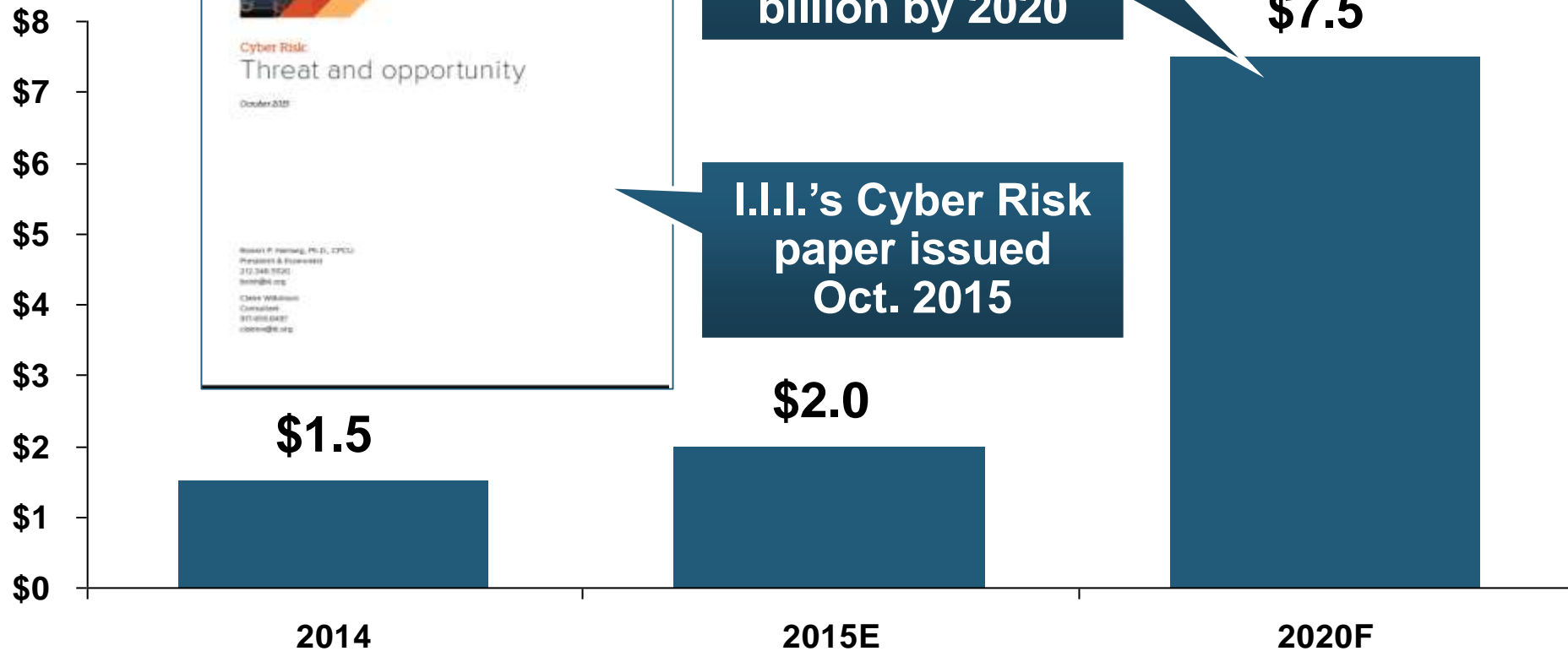
The 781 reported data breaches in 2015 was virtually unchanged from the record 783 reported in 2014. The number of exposed records soared to 169.1 million, and increase of 97.5%.

Data/Privacy Breach: Many Potential Costs Can Be Insured



Estimated Cyber Insurance Premiums Written, 2014 – 2020F

\$ Billions



The Sharing Economy

The Sharing (On-Demand or ‘Gig’) Economy Will Transform the American Workforce and the P/C Insurance Industry Too

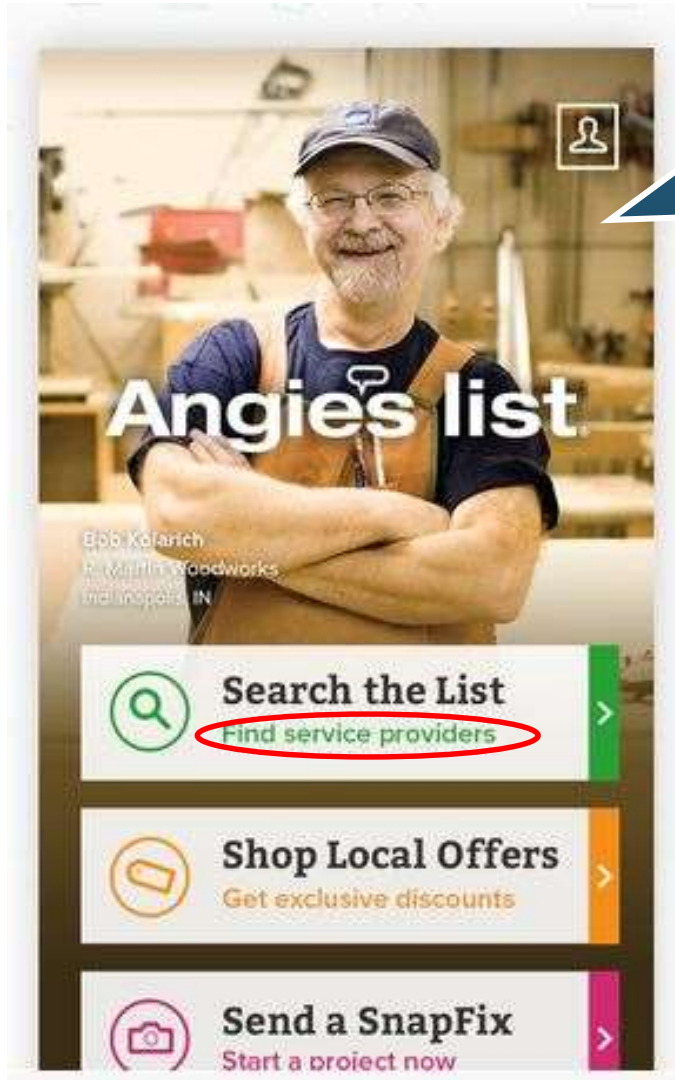
Labor on Demand: Huge Implications for the US Economy, Workers & Insurers

Will **YOUR** job
be reduced to
an app?

THE WALL STREET JOURNAL.
There's an Uber for Everything Now
Apps do your chores: shopping, parking, cooking, cleaning, packing, shipping and more



The “Sharing Economy” or “On-Demand” World is Not New...



Companies like
Angie's List
(established in
1995 and going
online in 1999)
have been
around for
decades

The Geek Squad
has been
around since
1994...



Peapod
sprouted way
back in 1989!



...But the “On-Demand” World is Exploding as Is the Demand for “On-Tap” Workers



Need something
done around the
house...Click on
Handy



Hate doing
laundry?
Washio will do it
for you...



Hate doing just
about everything?
Taskrabbit will
take on virtually
all your “tasks”...

You Can Live Your Life with the Swipe of a Finger...



Get married...



...Move



...And if it doesn't work
out...

Lawyers.com

Some Players in the Sharing Economy Have Become Household Names



Rent a place...



...Need a Lyft?



U B E R

...This ride has taken
Wall Street to the
stratosphere

On-Demand/Sharing/Peer-to-Peer Economy Impacts Many Lines of Insurance

- The “On-Demand” Economy is or will impact many segments of the economy important to P/C insurers
 - ◆ Auto (personal and commercial)
 - ◆ Homeowners/Renters
 - ◆ Many Liability Coverages
 - ◆ Professional Liability
 - ◆ Workers Comp
- Many insurance questions arise—some fairly simple, some complex
- Insurance solutions are increasingly available to fill the many insurance gaps that arise
- Some regulatory issues remain



U B E R



Regulation, Politics and the Sharing Economy

**Insurers Need to Operate in a
Complex and Rapidly Changing
Regulatory Environment**

Political Skepticism About the 'Gig' Economy



*"Many Americans are making extra money renting out a spare room, designing a website ... even driving their own car. This on demand or so called 'gig' economy is creating exciting opportunities and unleashing innovation, **but it's also raising hard questions about workplace protections** and what a good job will look like in the future."*

--Hillary Clinton, July 13, 2015



In California, Uber Driver Is Employee, Not contractor: Agency

By [Sarah McBride](#) and [Dan Levine](#)

*A driver for Uber is an **employee, not a contractor**, according to a California ruling that eventually could push up costs for the smartphone-based ride hailing service and hurt the closely watched start-up's valuation.*

*The California Labor Commissioner's decision could ripple through the burgeoning industry of providing services via smartphones, with **potential implications for other “crowdsourced” services such as Uber rival Lyft, chore service TaskRabbit, and cleaning service Homejoy.***

--Reuters, June 18, 2015

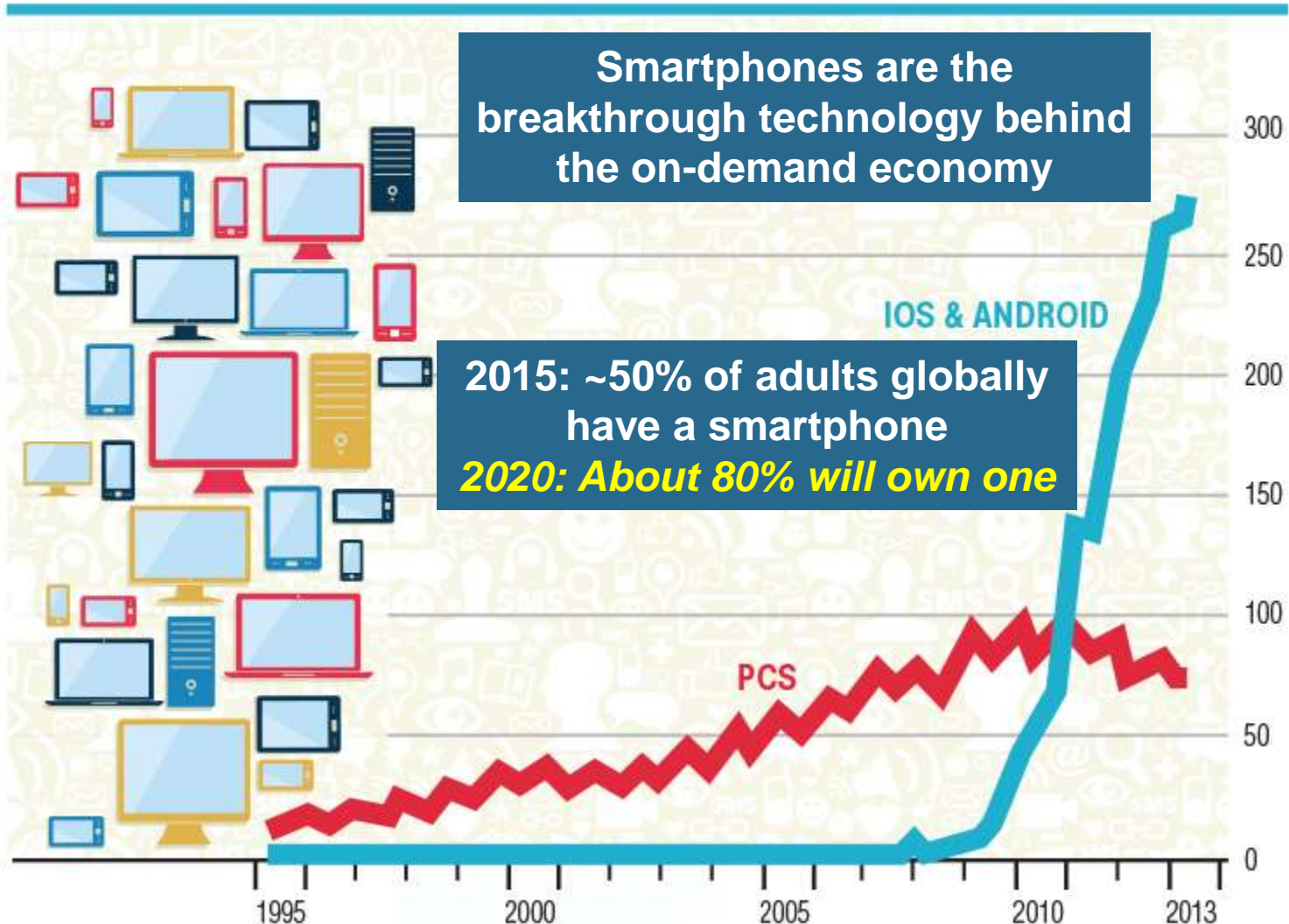
Technology and Employment

**What Makes the On-Demand
Economy Possible?**

Why Does It Matter for Insurers?

CHANGING PLATFORMS:

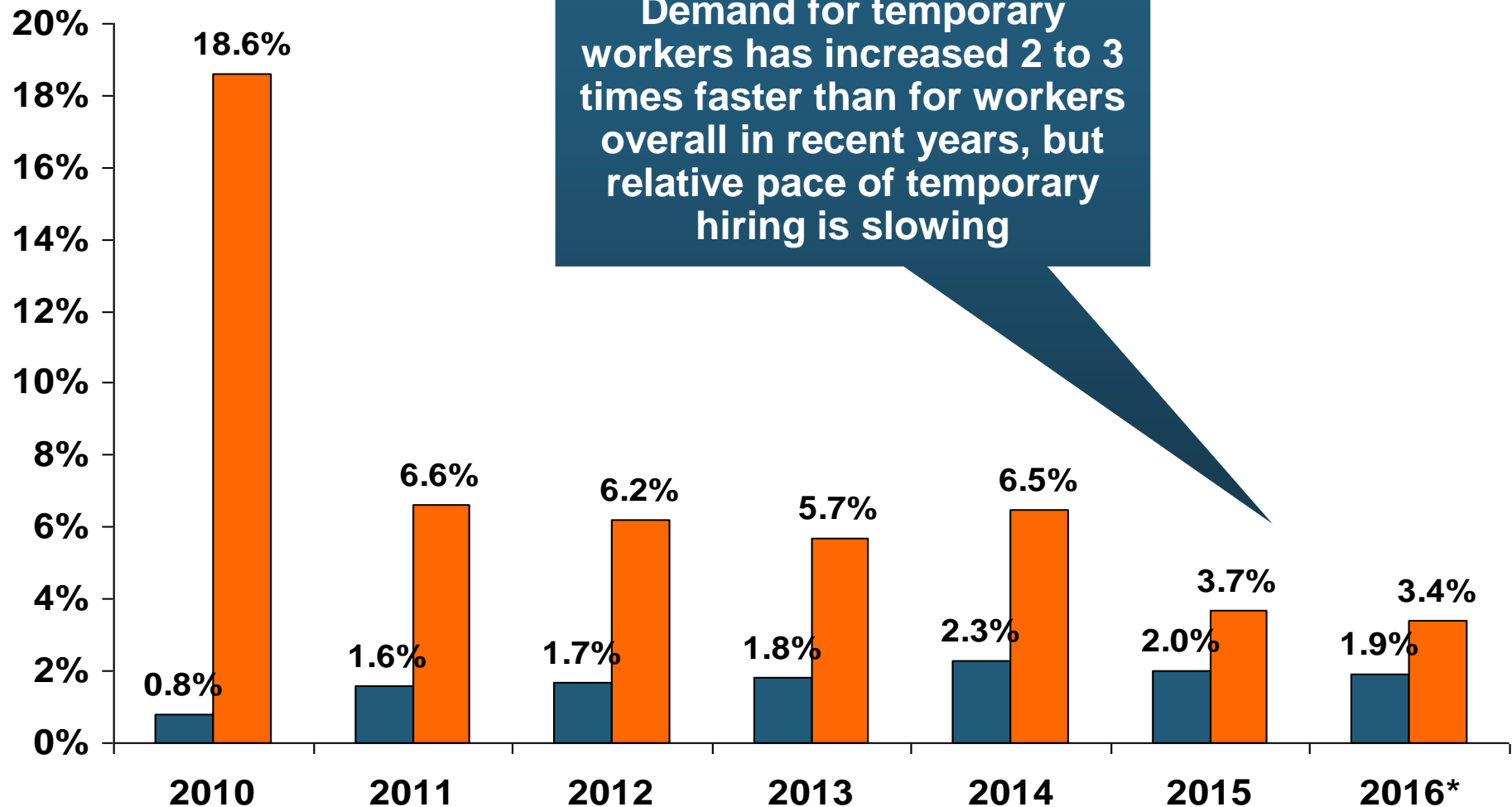
GLOBAL SHIPMENTS OF SMARTPHONES (MILLIONS)



Source: Benedict Evans, Andreessen Horowitz

Growth in Temporary Workers vs. All Nonfarm Employment, 2010-2016*

Annual Percent Change



*Through February 2016.

Source: US Bureau of Labor Statistics , Insurance Information Institute.

THE CASUAL LOOK

UNITED STATES, % OF EMPLOYED

PRIVATE-SECTOR UNION MEMBERSHIP

TEMPORARY WORKERS



Source: Bureau of Labor Statistics

The On-Demand Economy and American Workers: What Is Happening?

- **Technology is Fundamentally Transforming How Resources are Allocated and Used in the Economy**
- **Labor is No Exception to this Transformation**
- **Technology Offers New Opportunities to Match Labor to Jobs**
 - ◆ Owners of spare capacity (workers with time and skill) can be paired at low cost with those with a demand for that time and skill
 - ◆ Bringing together labor and those who employ labor is not new
 - ◆ BUT: Pairing occurs with a speed and breadth never before possible
- **Witnessing the Demise of the Traditional Understanding of What is Meant by a “Good” Job**
 - ◆ Concept born in the Industrial Age (1880-1980), but is eroding
 - ◆ Disintermediation of the firm as the place where labor, jobs matched
- **Accelerating Trends that Started with Labor Strife, Globalization and Automation that Began in the 1970s and 1980s**

What's In Store for the American Worker, Labor Force and Workers Comp

THE NEW AMERICAN WORKER: Two Schools of Thought

■ OPTIMISTIC OUTLOOK

- ◆ Technology frees workers from the bonds of centralized, hierarchical institutions (the firm)
- ◆ Enhanced coordination of “haves” with “needs” that bypass firms as intermediaries

■ Who Benefits?

- ◆ **“Flexers”**: People who value or require flexibility in work arrangements (stay-at-home parents, retirees, students, disabled)
- ◆ **Professionals**: People with portable skills that can be offered through online platforms (semi and high-skilled trades, professional services)
- ◆ **Unemployed/Underemployed**: Offers at least some opportunity to offer and utilize skills and generate income

What's In Store for the American Worker, Labor Force and Workers Comp

■ PESSIMISTIC OUTLOOK

- ◆ On-Demand companies are software-driven marketplaces and position themselves as “*platforms*” rather than “*employers*”
- ◆ Enormous valuations (e.g., \$40B for Uber on \$2B in earnings) reflect the extraction of resources that otherwise would go to benefits, investments in safety, training, etc.
 - Uber’s valuation was greater than that of 72% of the S&P500 at YE 2014
 - Valued more than Delta Airlines, Kraft Foods, CBS, Macy’s, Hilton, Aflac...
- ◆ Jobs reduced to freelanced, temporary “gigs”
- ◆ Low skill workers and those who lack flexibility are left further behind
- ◆ Workers treated as independent contractors without intrinsic or basic economic rights

■ What Is Potentially Lost or Compromised?

- ◆ Stability, Retirement Benefits, Sick Pay, Maternity Leave, Overtime
- ◆ Health Insurance, Liability Coverage, Workers Comp Coverage

Potential Consequences for Insurers

- **On-Demand Platforms Have Struggled with Concepts of Liability**
- **There Has Been a General Resistance to Assuming Liability or Responsibility Unless Compelled to Do So**
- **Companies Have Sought to Keep as Much Liability as Possible on the Individual Offering their (Contracted) Labor or Resources**
- **Minding the Gap**
 - ◆ Traditional insurance will often not cover a worker engaged in offering labor or resources through these platforms
 - ◆ E.g., Auto ins. generally won't cover you if you while driving for Uber
 - ◆ Home ins. won't cover for other than occasional rentals of property
 - ◆ Unless self-procured, on-demand worker (independent contractors) will generally have no workers comp recourse if injured on the job
- **Long Legislative and Court Battles Lie Ahead, Including Determination of Who is an Employee vs. Independent Contractor**
- **Insurance Solutions Becoming More Common**

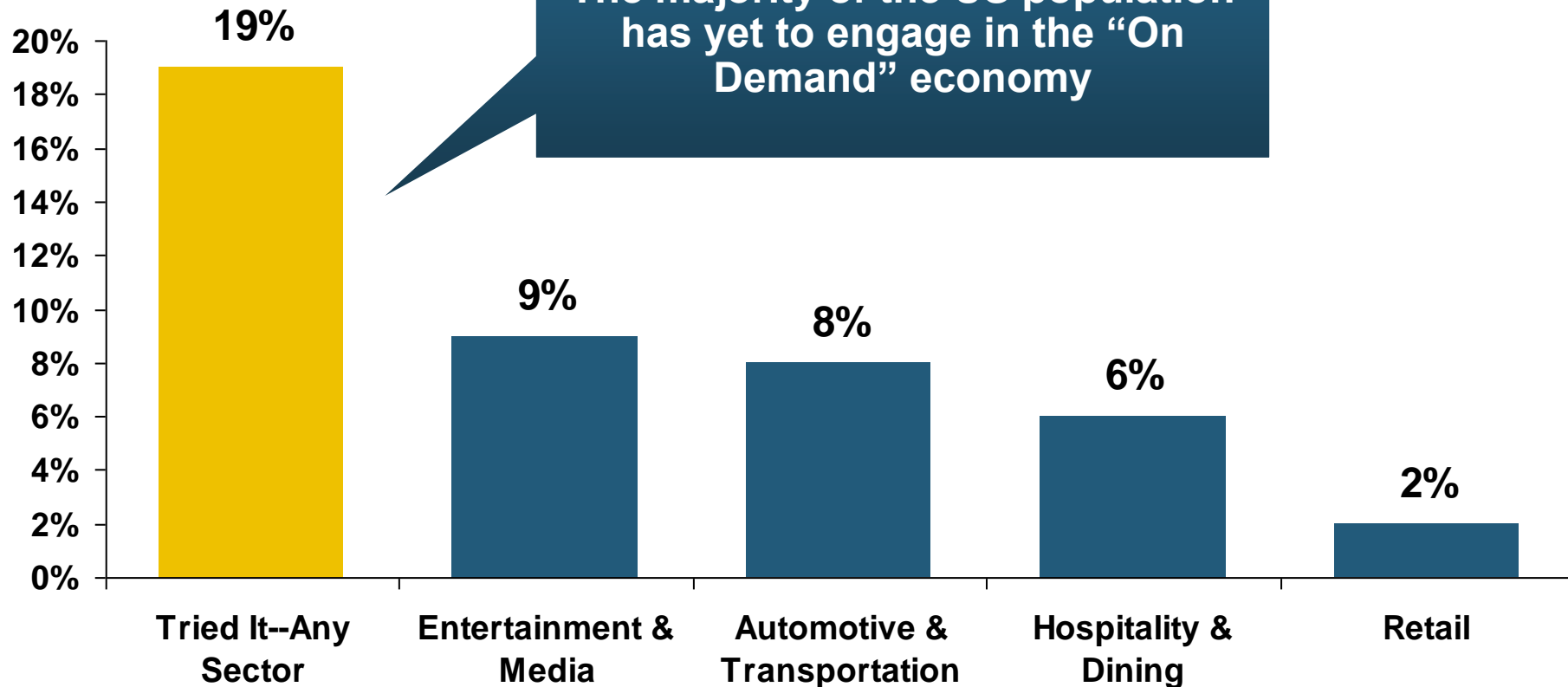
On-Demand Workers

Who Are They?

And Who's Driving Demand for Them?

Percent of People Who Have Engaged in an “On Demand/Sharing Economy” Transaction

Percent



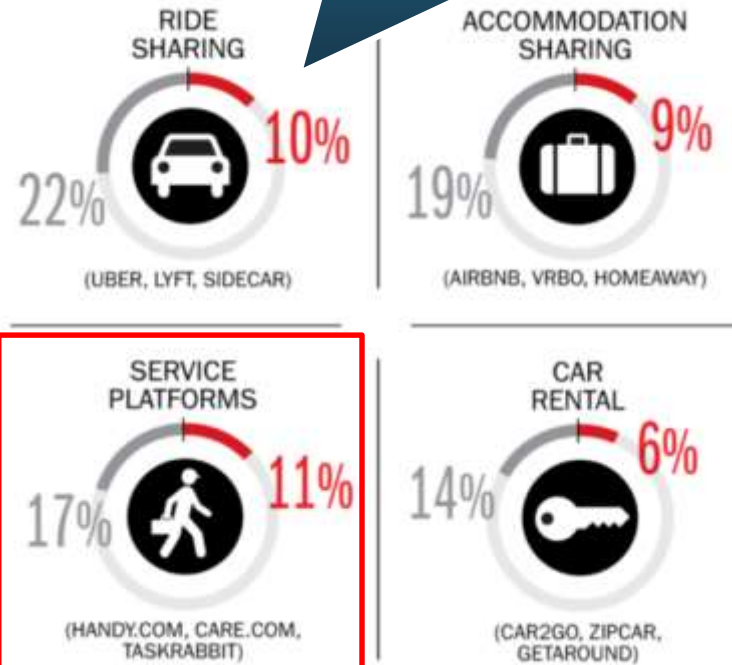
About 19% of the US population has engaged in an “On Demand/Sharing Economy” Transaction

Percent of Americans Who Have Engaged in the “Gig/Sharing Economy” by Transaction



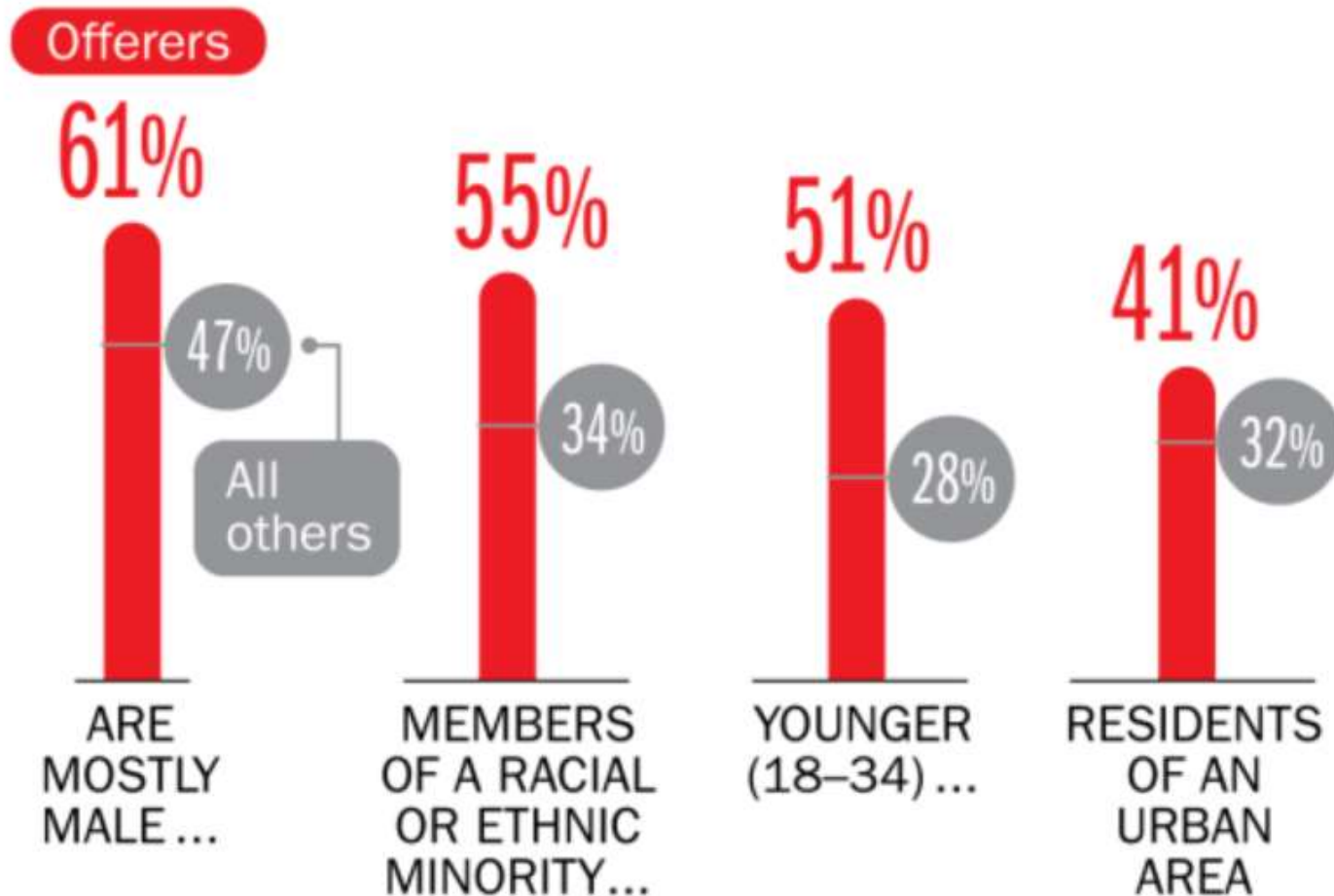
About 22% of Americans have offered services in the sharing economy

Drivers have significant WC exposures



Service platforms have the most direct link to WC; 11% of Americans have offered their services

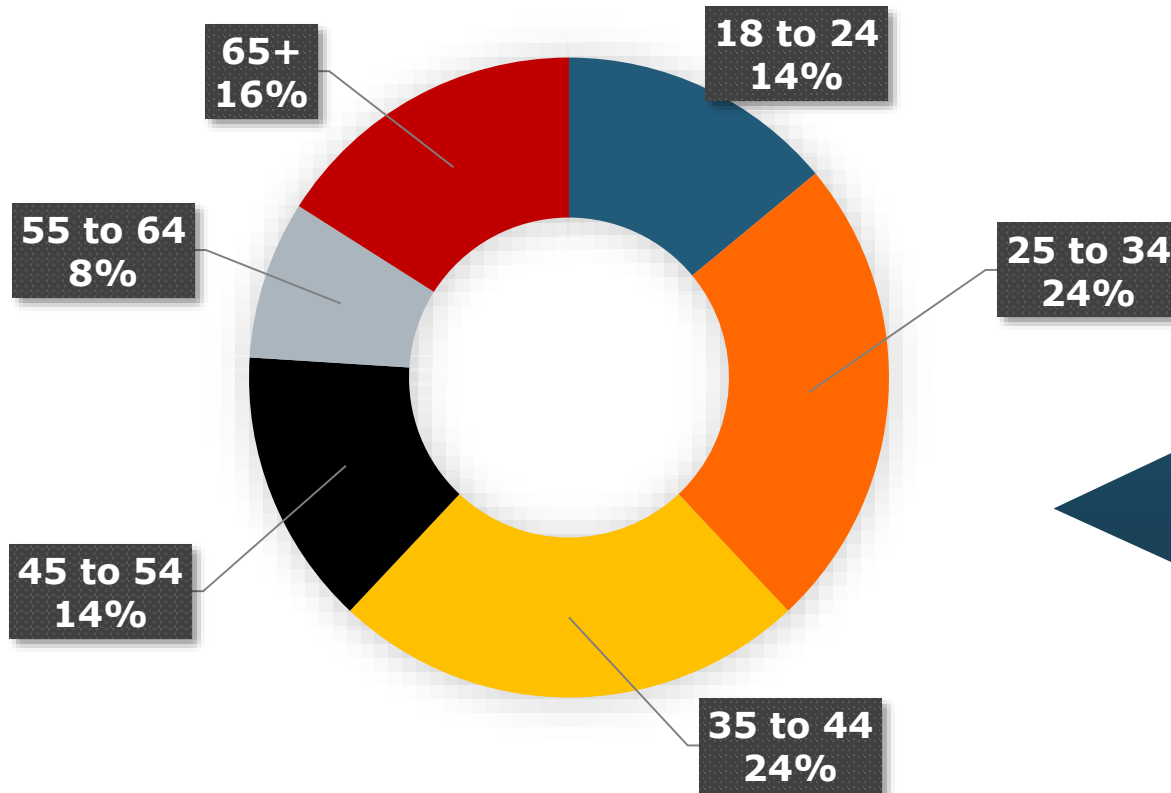
Americans Who Offer Services in the Sharing/Gig Economy Are Statistically More Prone to Workplace Injury



Young, Urban Minority Males Are the Most Likely to Offer their Services in the Sharing Economy

Sources: The SelfEmployed.com accessed at <https://www.theselected.com/gig-economy/infographic-inside-the-new-economy/> based on a poll by Time magazine, Bursten-Marsteller and The Aspen Institute; Insurance Information Institute.

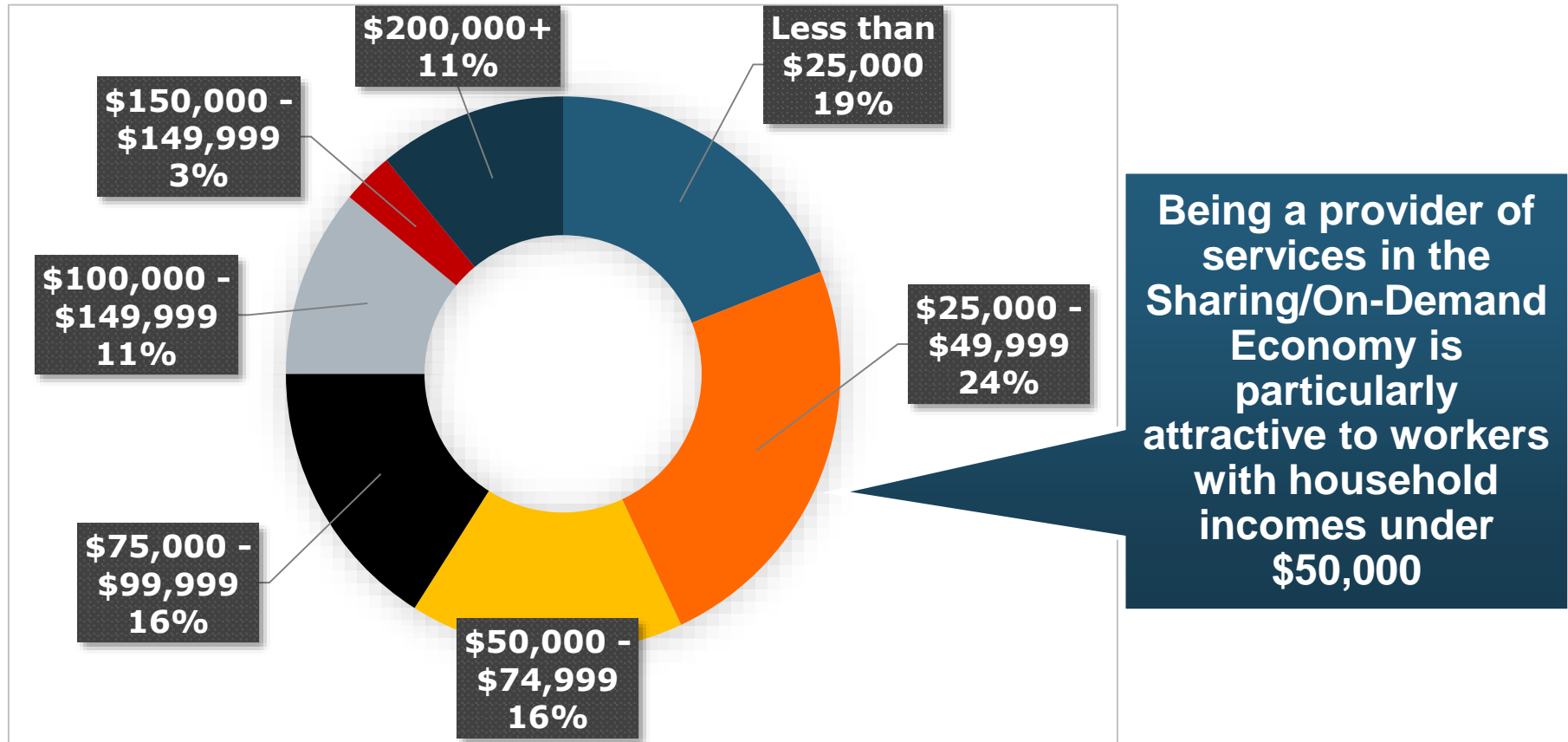
Age of People Who are Providing the Sharing/On-Demand Economy



Being a provider of services in the Sharing/On-Demand Economy is attractive to workers in the 25-44 age range (who want flexibility in raising families) as well as seniors age 65+ who see the offering their services on-demand as a way to augment retirement income

About 7% of US population are providers in the Sharing Economy, cutting across age and incomes;
51% of those familiar with the concept could see themselves as providers within the next two years.

Household Income: Providers of the Sharing/On-Demand Economy



About 7% of US population are providers in the Sharing Economy, cutting across age and incomes; 51% of those familiar with the concept could see themselves as providers within the next two years.

Americans Love Working in the Sharing Economy but Many Feel Exploited

LOVE WORKING IN THE INDUSTRY

71%
POSITIVE



Experience
with new-
economy
companies



2%
NEGATIVE

AGREE THAT THE INDUSTRY IS EXPLOITING A LACK OF REGULATION

Offerers

58%
AGREE

29%
DISAGREE

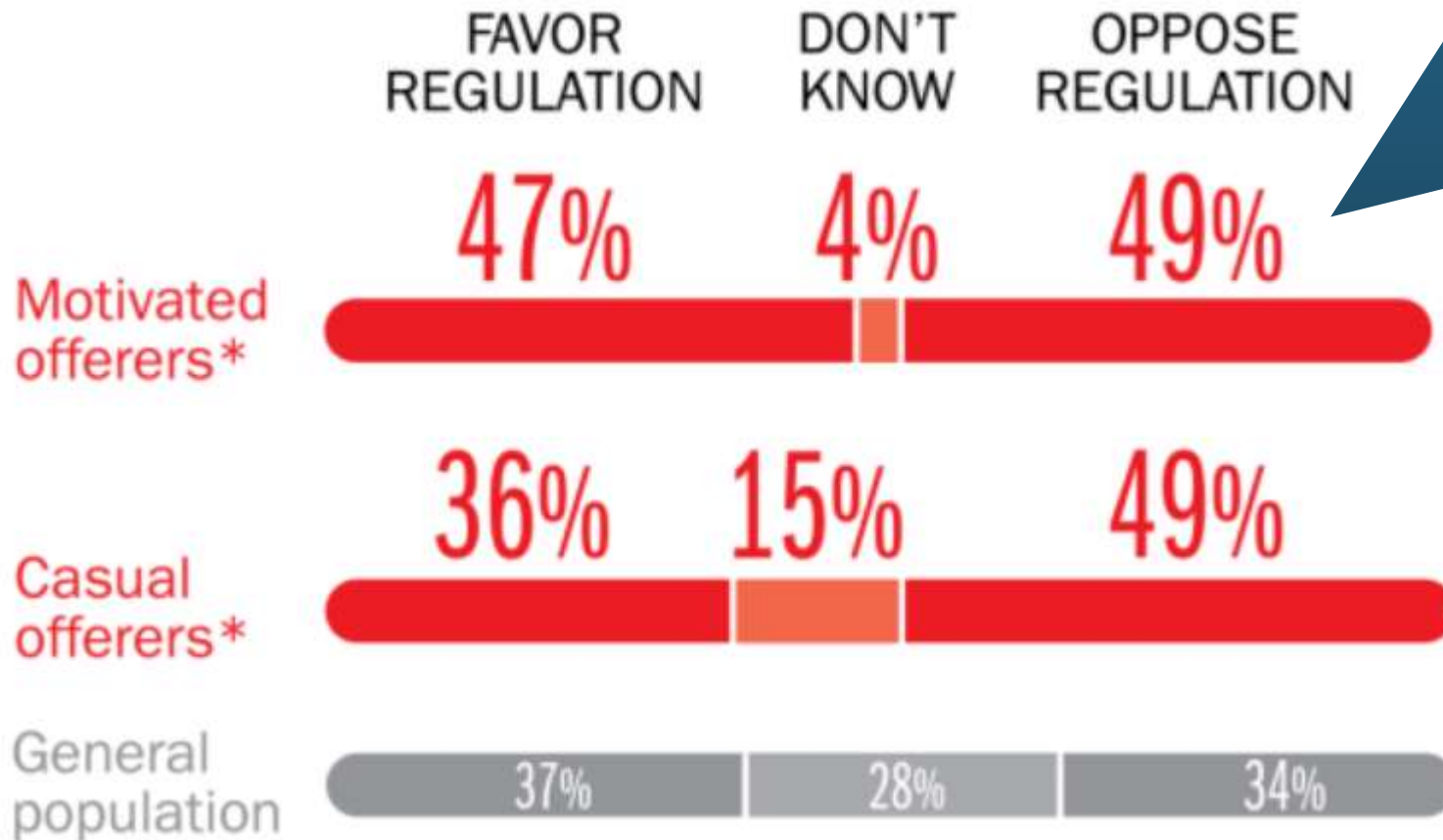
General
population

47%
AGREE

26%
DISAGREE

Despite general satisfaction with sharing economy as an “industry,” there is a sense that workers are being exploited—especially by the workers themselves

Opinions Are Split on Whether the Sharing Economy Needs More Regulation



The most frequent offerers of services through online platforms are equally divided over the need for more regulation

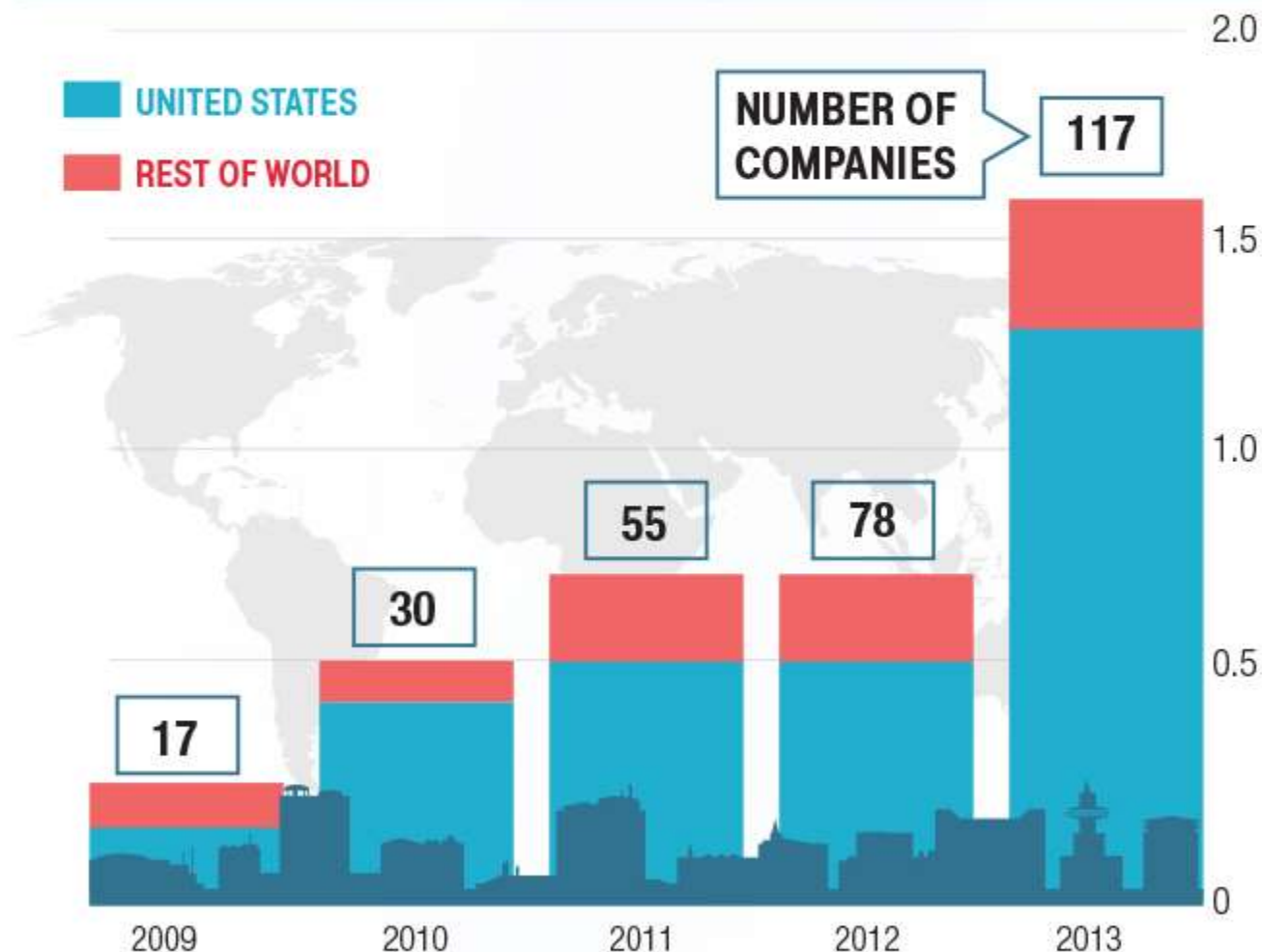
The On-Demand Economy and Wall Street

**Wall Street Loves the On-Demand
Economy**

***Labor Markets, Insurance Markets
Will Be Impacted***

HERE'S AN IDEA

VENTURE-CAPITAL INVESTMENT IN THE ON-DEMAND ECONOMY, \$BN



Source: Crunchbase

An UBER Case Study

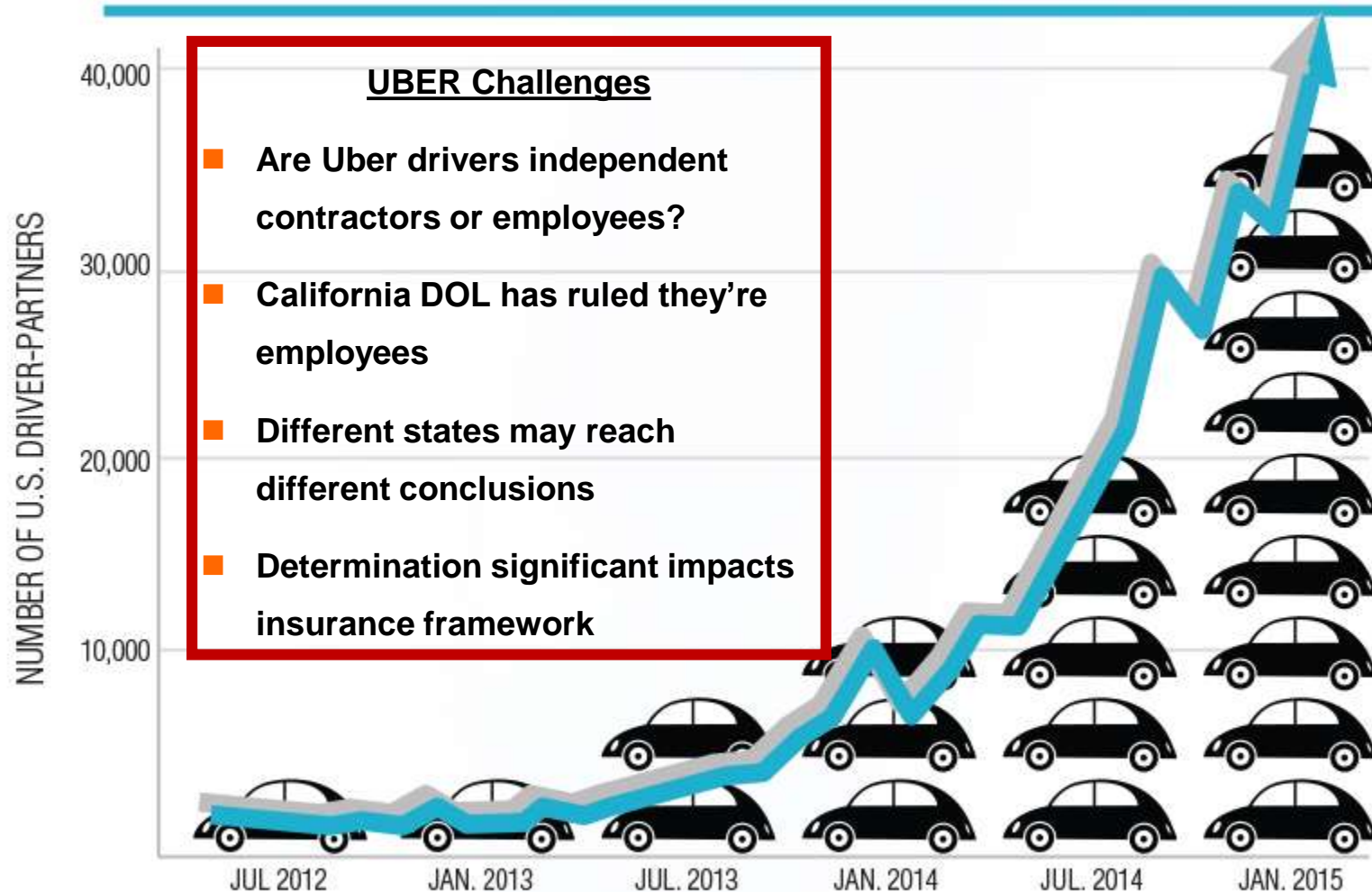
**Uber is the Best Known of the
On-Demand Companies**

***Wall Street Loves Uber
Vested Interests Hate Uber***



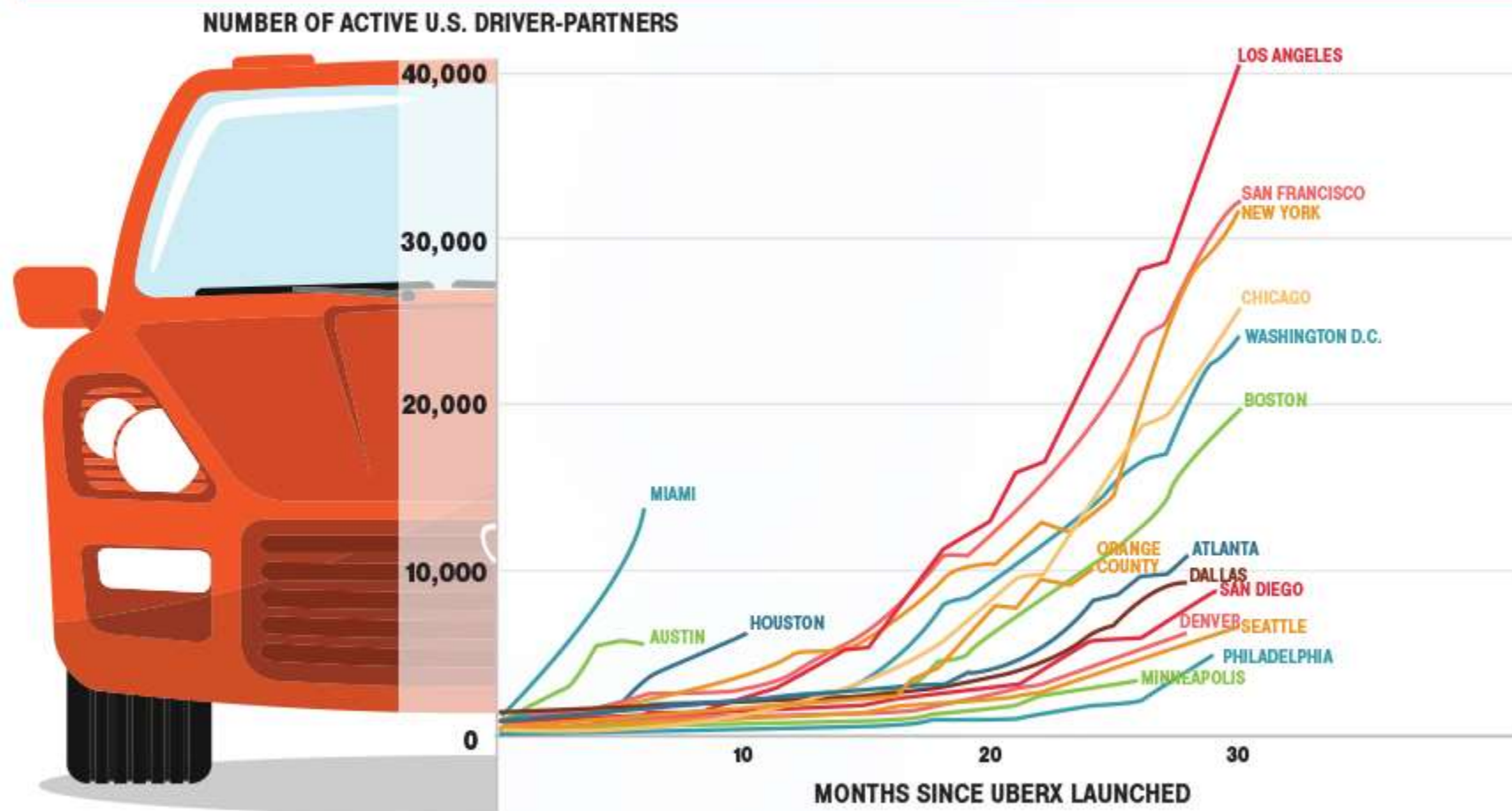
U B E R

NUMBER OF NEW DRIVER-PARTNERS STARTING EACH MONTH IN THE UNITED STATES



Note: Figure based on U.S. UberBLACK and uberX driver-partners who have joined since June 2012 (303,985 individuals), based on Uber data.

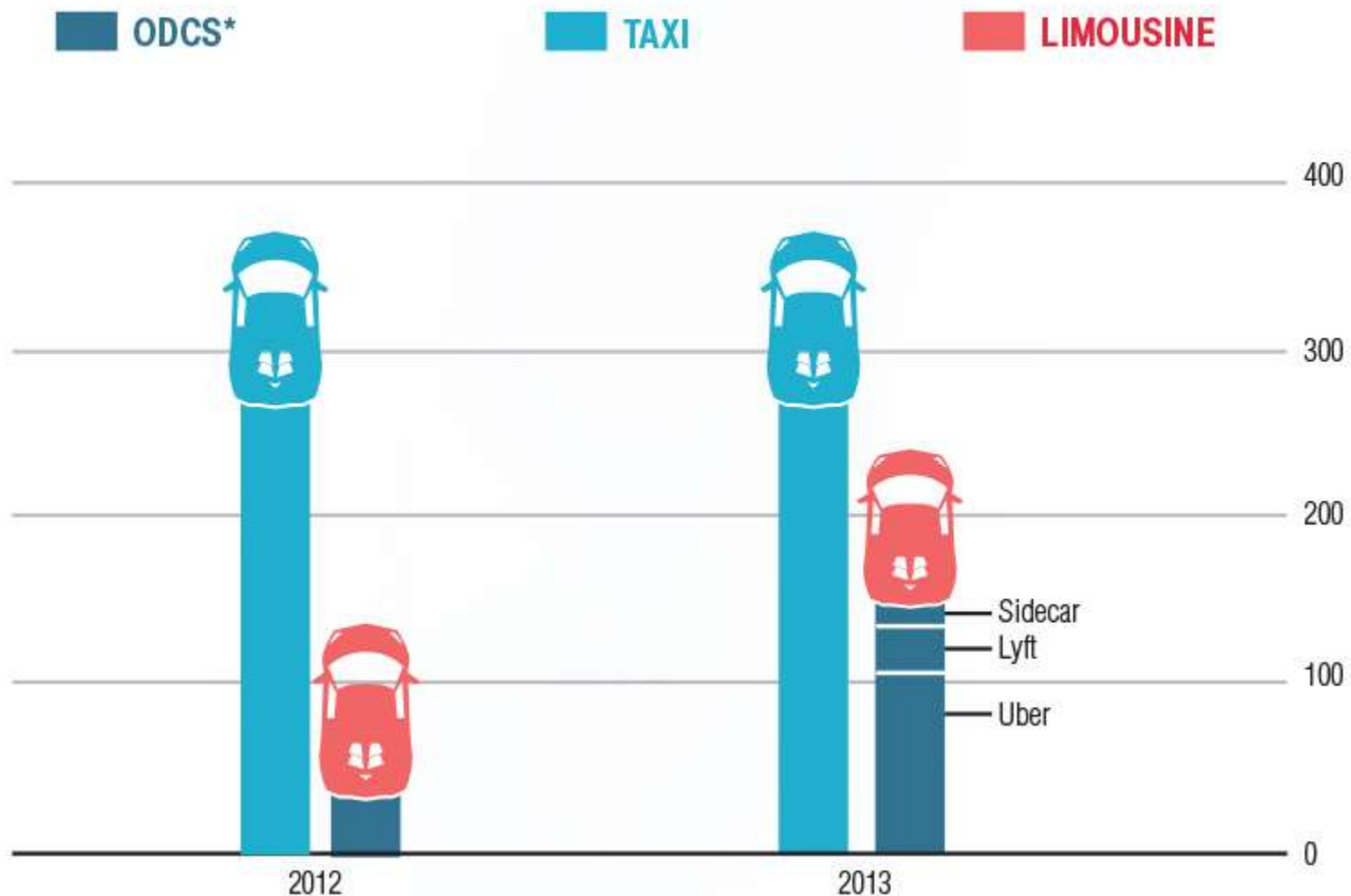
ACTIVE U.S. DRIVER-PARTNERS OVER TIME, BY CITY



Note: Figure reports the number of U.S. UberBLACK and uberX driver-partners making at least one trip in the specified month, indexed to the number of months since Uber began in the city or June 2012, whichever came later.

OVERTAKING

DRIVER-SERVICES MARKET IN SAN FRANCISCO, \$M

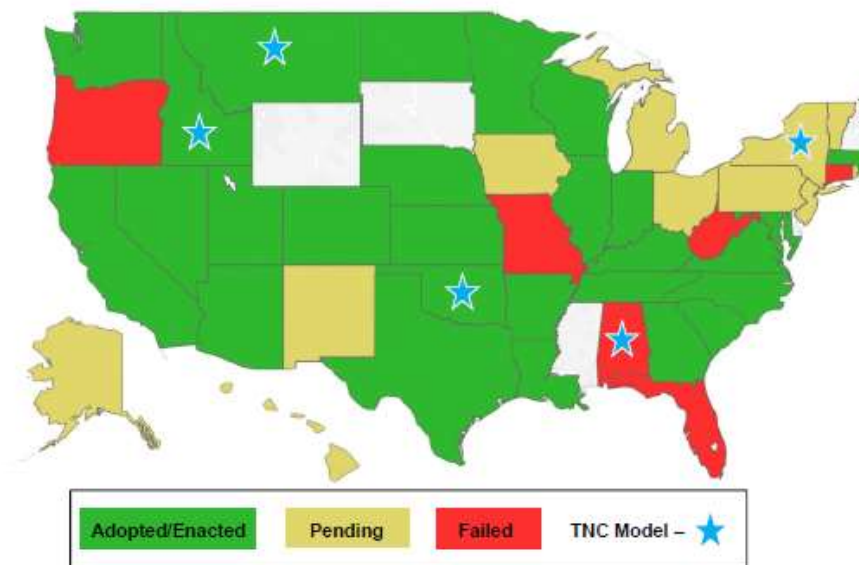


Source: SFMTA

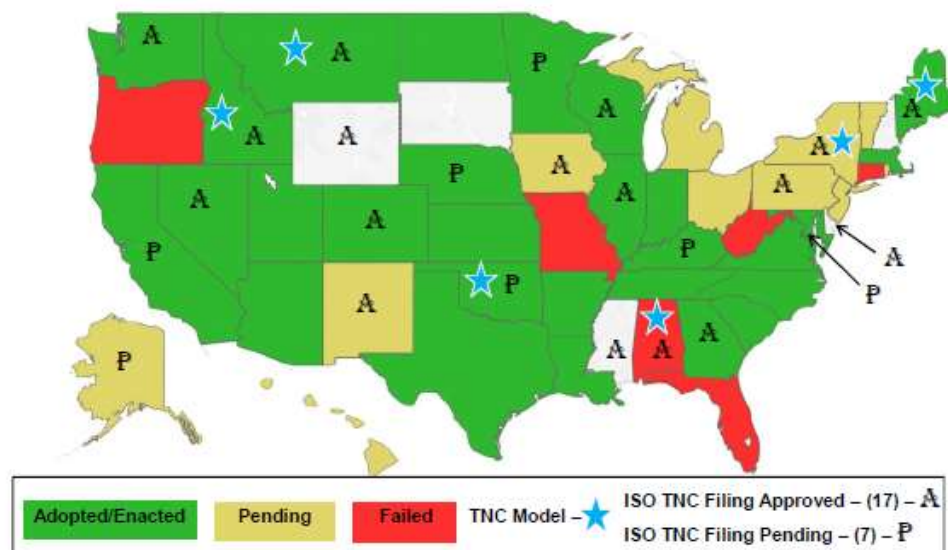
*On-demand cars

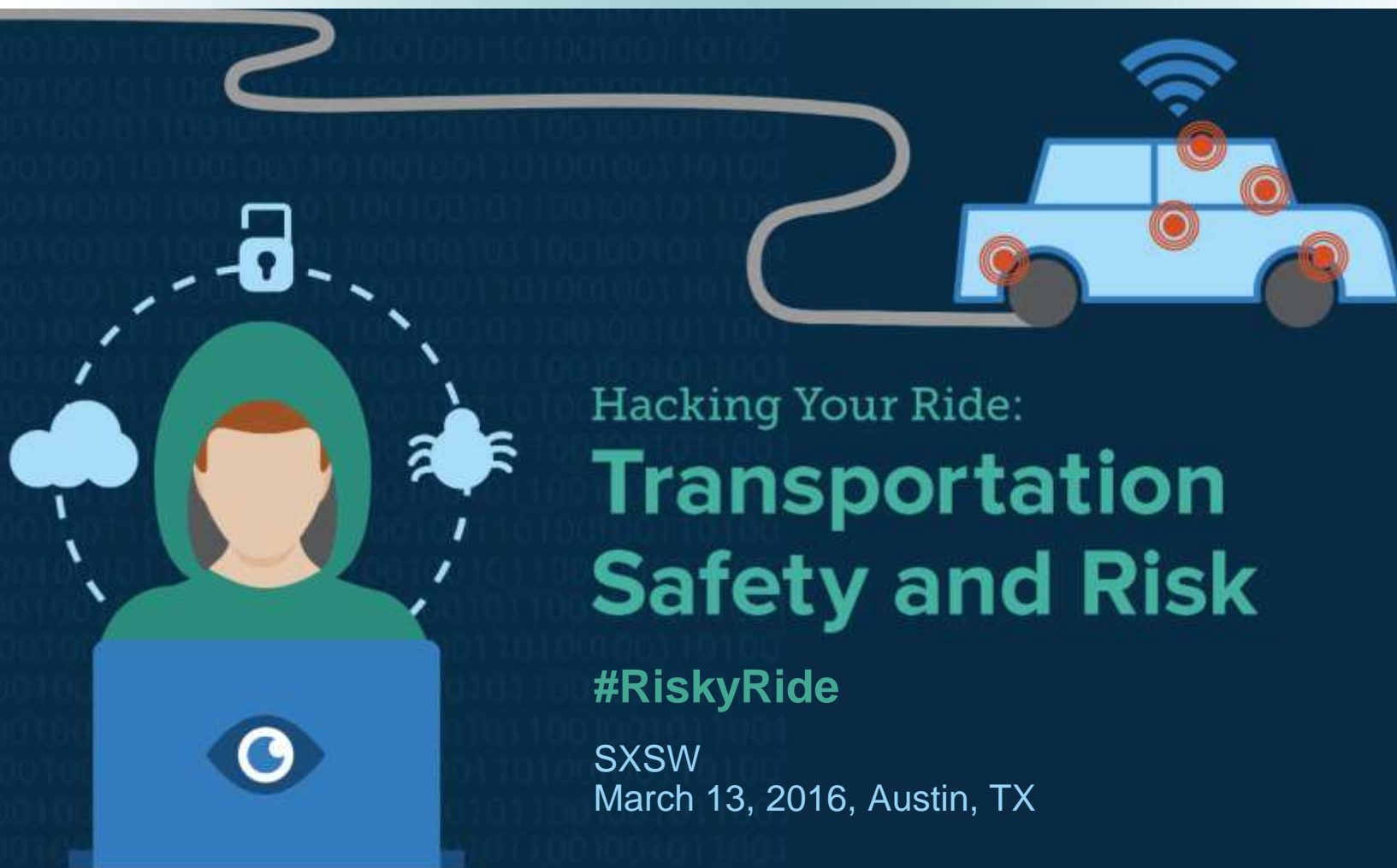
Ridesharing Regulation/Legislation and Status of ISO Filings as of 9/30/15

Status Ride Sharing Legislation/Regulation



Status of ISO Filings





Hacking Your Ride:

Transportation Safety and Risk

#RiskyRide



SXSW

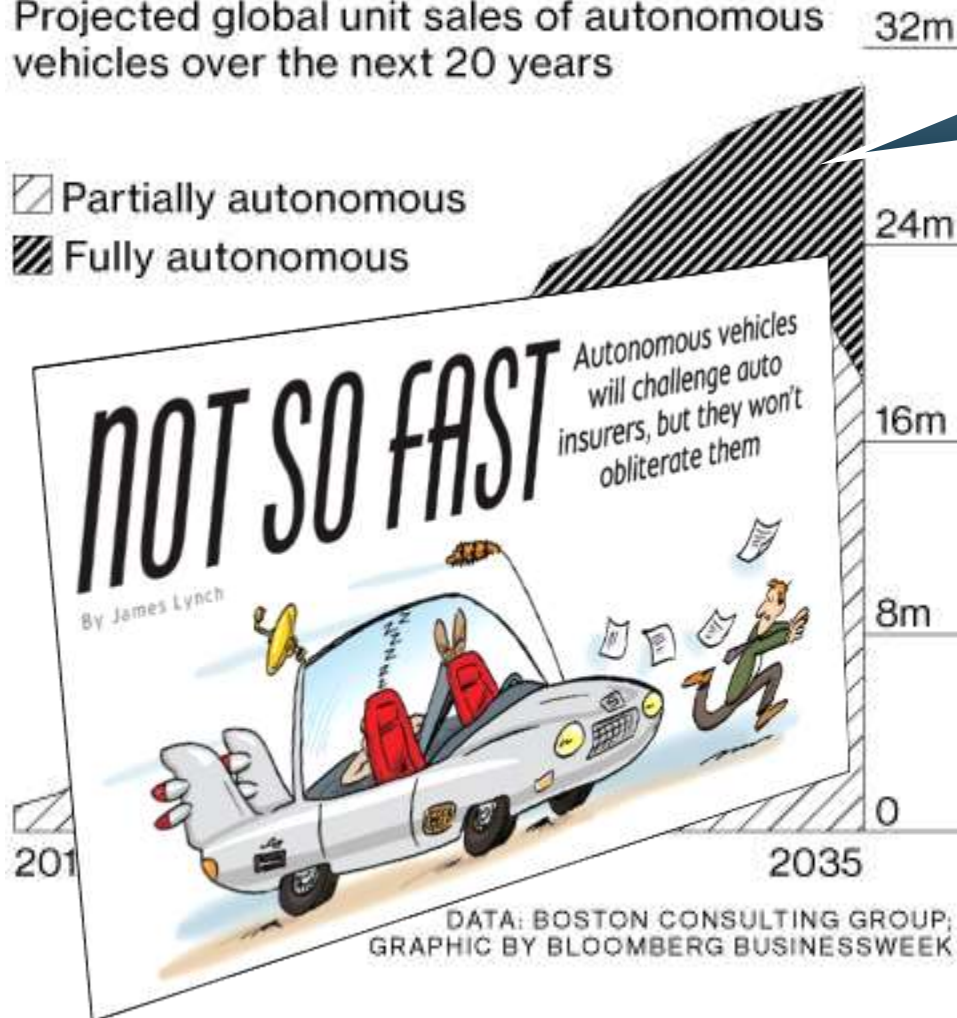
March 13, 2016, Austin, TX

Media is Obsessed with Driverless Vehicles: Often Predicting the Demise of Auto Insurance

Hands-Free

Projected global unit sales of autonomous vehicles over the next 20 years

-  Partially autonomous
 Fully autonomous



By 2035, it is estimated that 25% of new vehicle sales could be fully autonomous models

Questions

- Are auto insurers monitoring these trends?
- How are they reacting?
- Will Google take over the industry?
- Will the number of auto insurers shrink?
- How will liability shift?

2015: Transportation Incidents on the Rise



“Is It Possible for
Passengers to Hack
Commercial Aircraft?”

- *Federal Highway Administration
Report, 1997*

“Fiat Chrysler Issues
Recall Over Hacking”

- *The New York Times,
July 24, 2015*



“Hackers Show They
Can Take Control of
Moving Jeep Cherokee”

- *Wall Street Journal, July 21, 2015*

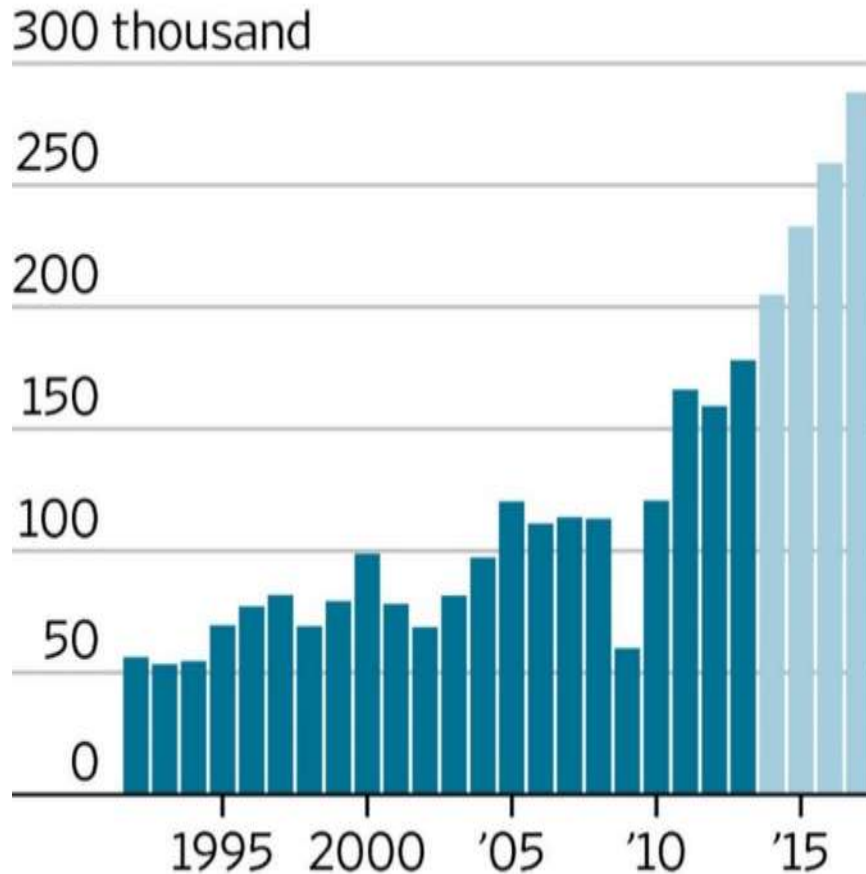
“Hackers Cut a
Corvette’s Brakes
Via a Common
Car Gadget”

- *Wired, August 11, 2015*

FROM GIG TO GONE?

**Will Robots and
Automation Destroy the
Gig Economy?**

Worldwide Industrial Robot Installations, 1992-2017F



Many jobs in the 'gig' economy are vulnerable to automation

Worldwide installations of industrial robots exceeded 200,000 in 2014—a new record and will approach 300,000 by 2017

36,000 installations are expected in North America by 2017



*Estimate.

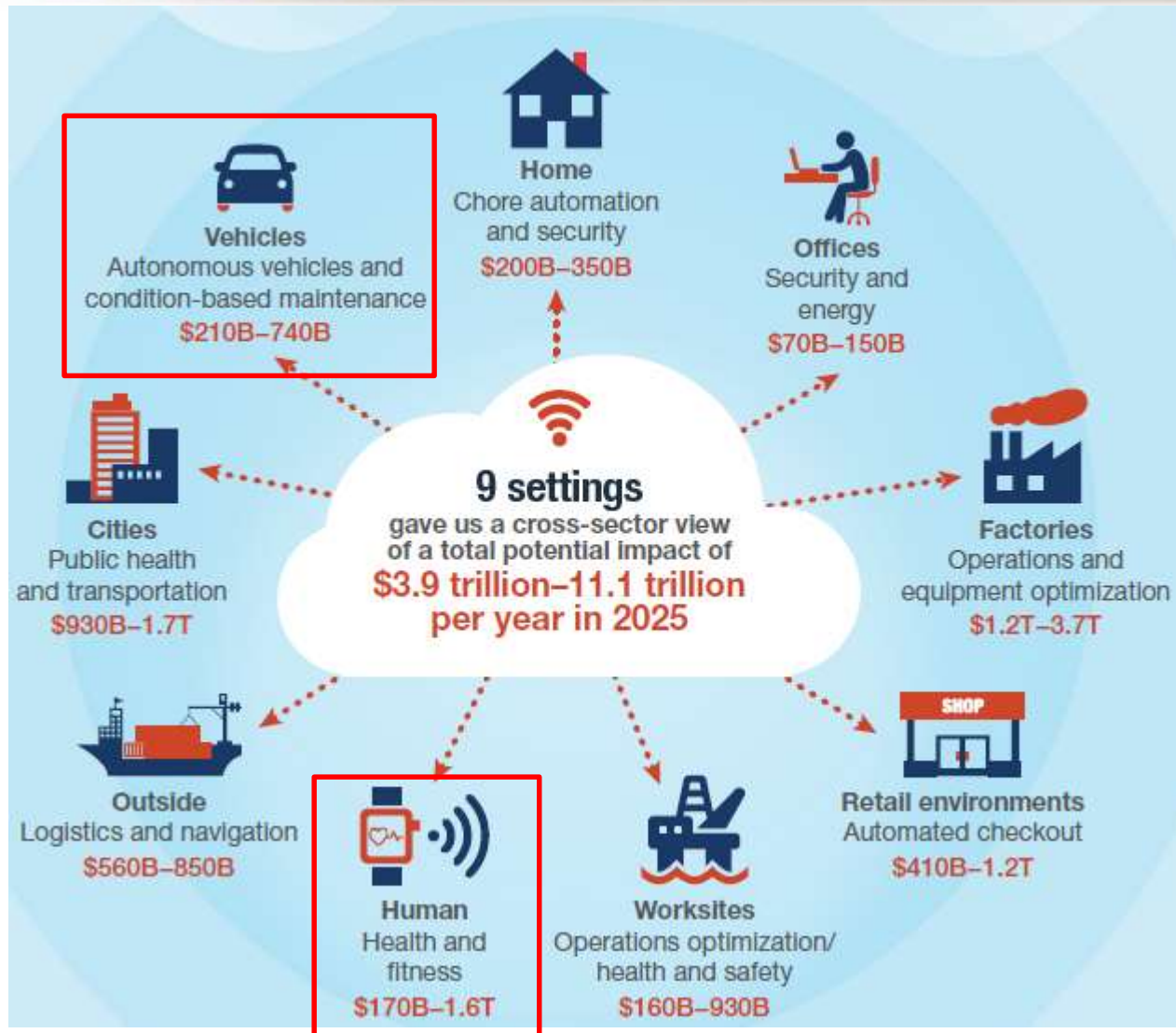
Sources: *Outlook on World Robotics 2014*, International Federation of Robotics; Insurance Information Institute.



The Internet of Things and the Sharing/Gig Economy

Capturing Economic Value Amid a Shifting Insurer Value Chain

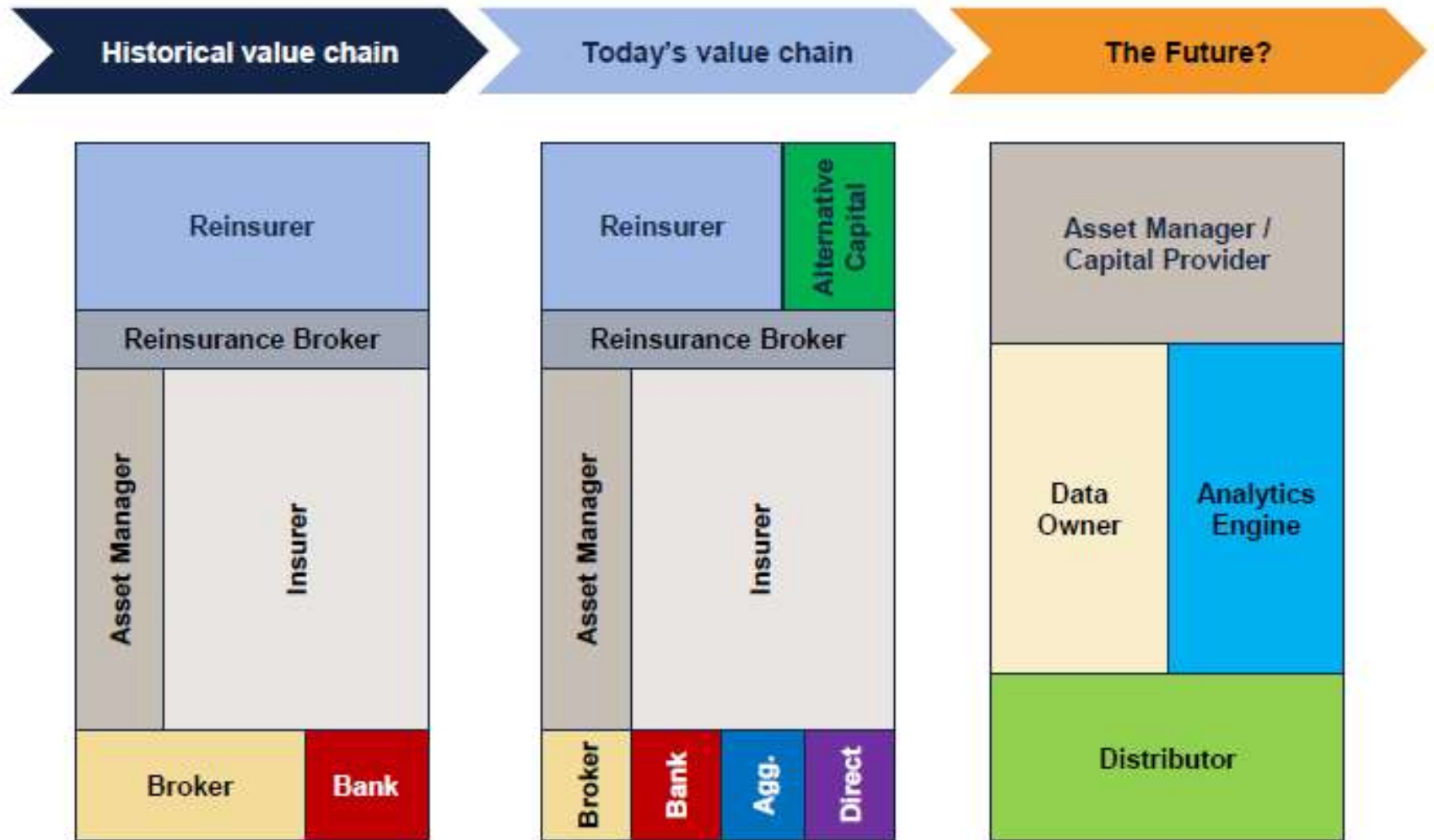
The Internet of Things and the Insurance Industry



- The “Internet of Things” will create trillions in economic value throughout the global economy by 2025
- What opportunities, challenges will this create for insurers?
- What are the impact on the insurance industry “value chain”?

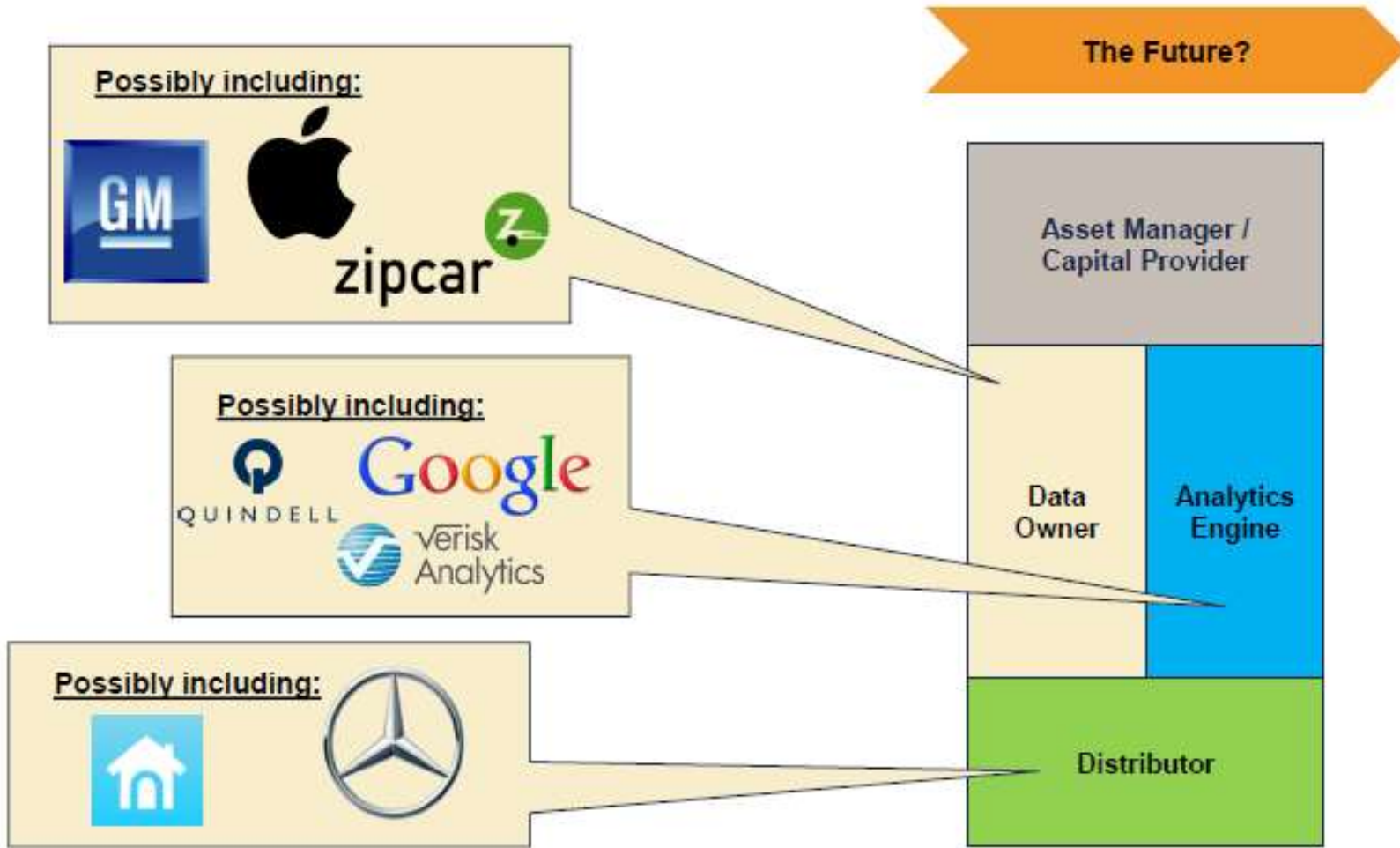
Sources: McKinsey Global Institute, *The Internet of Things: Mapping the Value Beyond the Hype*, June 2015; Insurance Information Institute.

The Internet of Things and the Insurance Industry Value Chain



The Insurance Industry Value Chain Is Changing for Many Reasons

The Internet of Things and the Insurance Industry Value Chain



**Who owns the data? Where does It flow? Who does the analytics?
Who is the capital provider?**



A NEST Case Study

Nest: A Leader in the “Internet of Things”

Collision Course or Cooperation with the Insurance Industry?



Telematics for Your Home: The Internet of Things

- The home is the next frontier for telematics
- Rapidly becoming a crowded space
- How and with whom will insurers partner?
- Can control increasing array of household systems remotely



- ◆ Heat, A/C
- ◆ Fire, CO detection
- ◆ Security Systems
- ◆ Cameras/Monitors
- ◆ Appliances
- ◆ Lighting

- Technology is adaptive

- ◆ *Uses sensors and algorithms to learn about you*



Partnerships with Insurers: Selling Safety and Savings Simultaneously

Stay safe.
Save money.

Your insurance company knows Nest Protect helps keep you safe. They know it saves lives.

So we've partnered with leading insurance companies to help you get a Nest Protect at no cost. Your insurance provider could also lower your premiums up to 5% because Nest Protect is special - it can connect to Wi-Fi and tell them it's working.

It's their business to know what keeps families safe. And they believe in Nest Protect.

Find out when a Nest insurance partner is coming to your area.

 nest



Nest is actively seeking to partner with insurers. As of Jan. 10, 2016, Nest listed 2 insurance partners offering discounts in a number of states

Wearables and Beyond...

**Where The Internet of Things
Meets Health, Disability and Workers
Compensation Insurance**

Wearables Show Significant Potential to Reduce Workplace Injury, Death

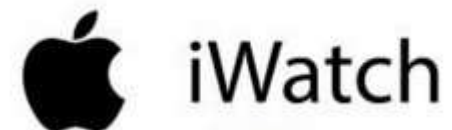
■ Wearables Today Can Monitor:

- ◆ Location
- ◆ Heart rate
- ◆ Temperature
- ◆ Steps/Exertion
- ◆ Sweat
- ◆ Sleep



■ In the Near Future Could Monitor:

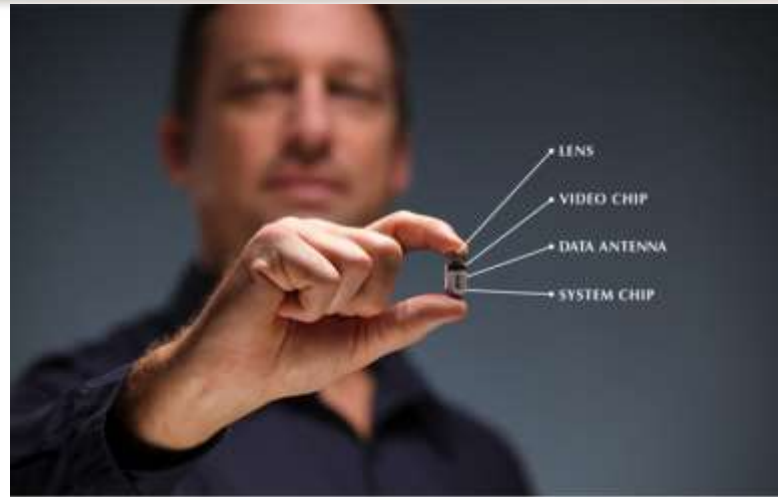
- ◆ Glucose level
- ◆ Oxygen levels
- ◆ Pain
- ◆ Nausea



Beyond Wearables: Ingestibles and Implantables, VR Could Have Big Impacts Too

■ Ingestibles:

- ◆ Body chemistry
- ◆ View malignancies
- ◆ Detect diseases
- ◆ Medication adherence



■ Implantables

■ Smart Fabrics

■ Virtual Reality

- ◆ Computer simulated reality



■ Augmented Reality

- ◆ Real world environment supplemented by computer generated inputs



A Few Outstanding Issues (Among Many)

■ Worker Status

- ◆ Are workers independent contractors or employees?

■ Privacy

- ◆ Where is the dividing line between data that is useful or necessary for the conduct of business and truly private information?

■ Security

- ◆ How will data be protected?
- ◆ How will the inevitable breaches be managed?

■ Data Ownership and Portability

- ◆ Who owns the data? Is the data portable?

■ Insurance

- ◆ Need for evolving property and liability coverages
- ◆ Concern over disintermediation

Insurance Information Institute Online:

www.iii.org

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and your attention!*

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