

DSAC Western Regional Conference

Over the Horizon



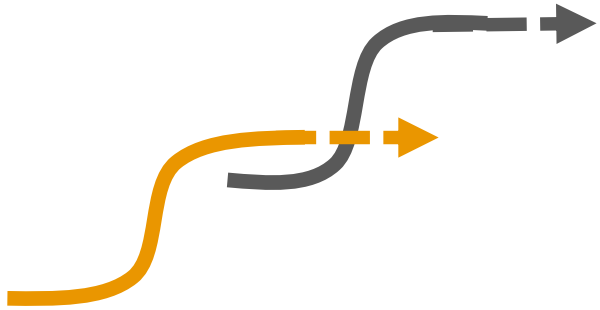
Garry Golden

October 12, 2017

garrygolden.com/Oct12

Start

End



**Era-based
Transitions**



**Drivers
of Change**



Learning More



Four Futures Thinking



Continuation



**Disciplined
Constrained**



Transformed



**Decline
Collapse**



Four Futures Thinking



Continuation



**Disciplined
Constrained**



Transformed



**Decline
Collapse**



Foresight *as the Front End...*
of Innovation + Strategy

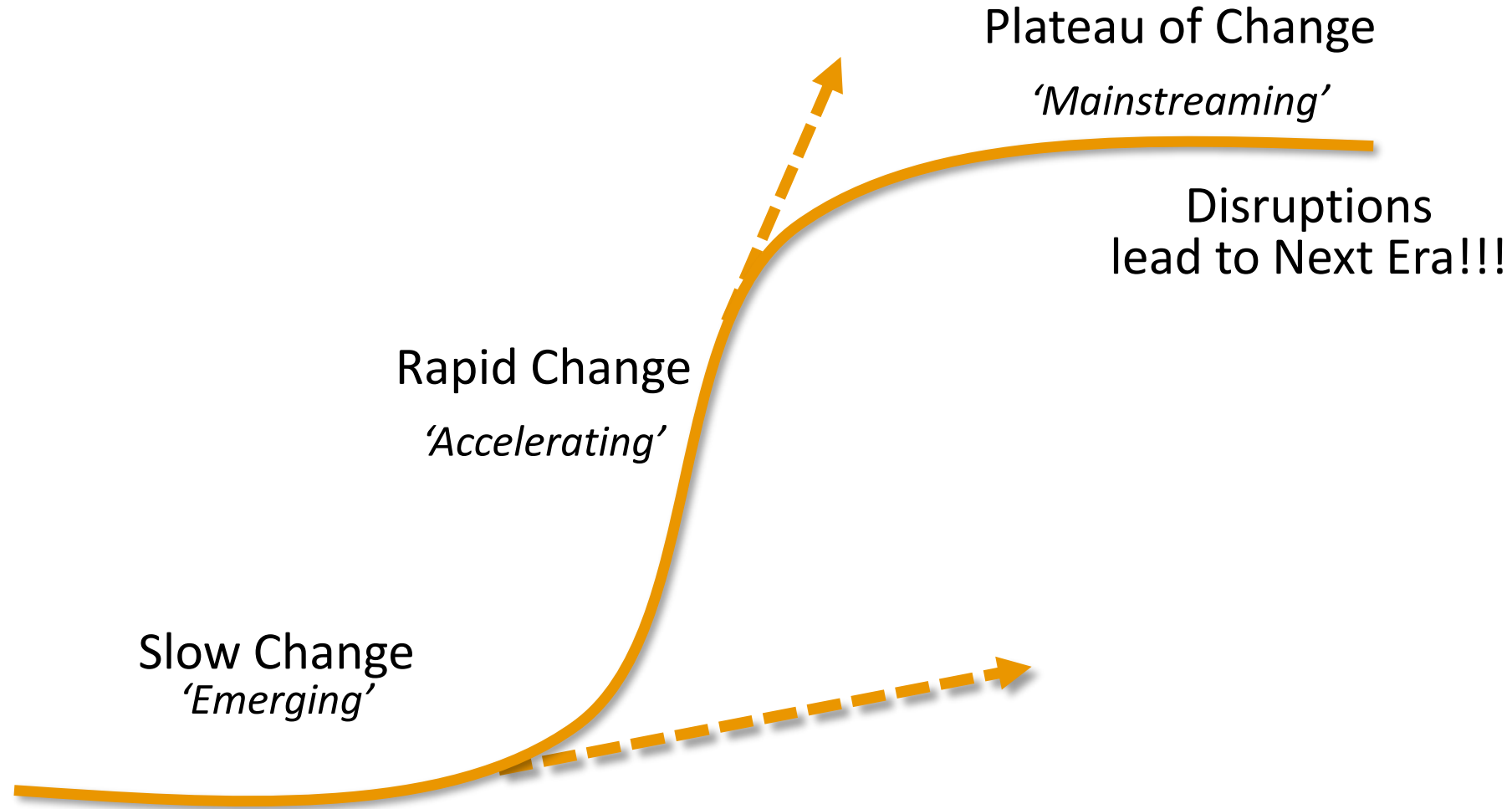


Foresight = Front end of Innovation

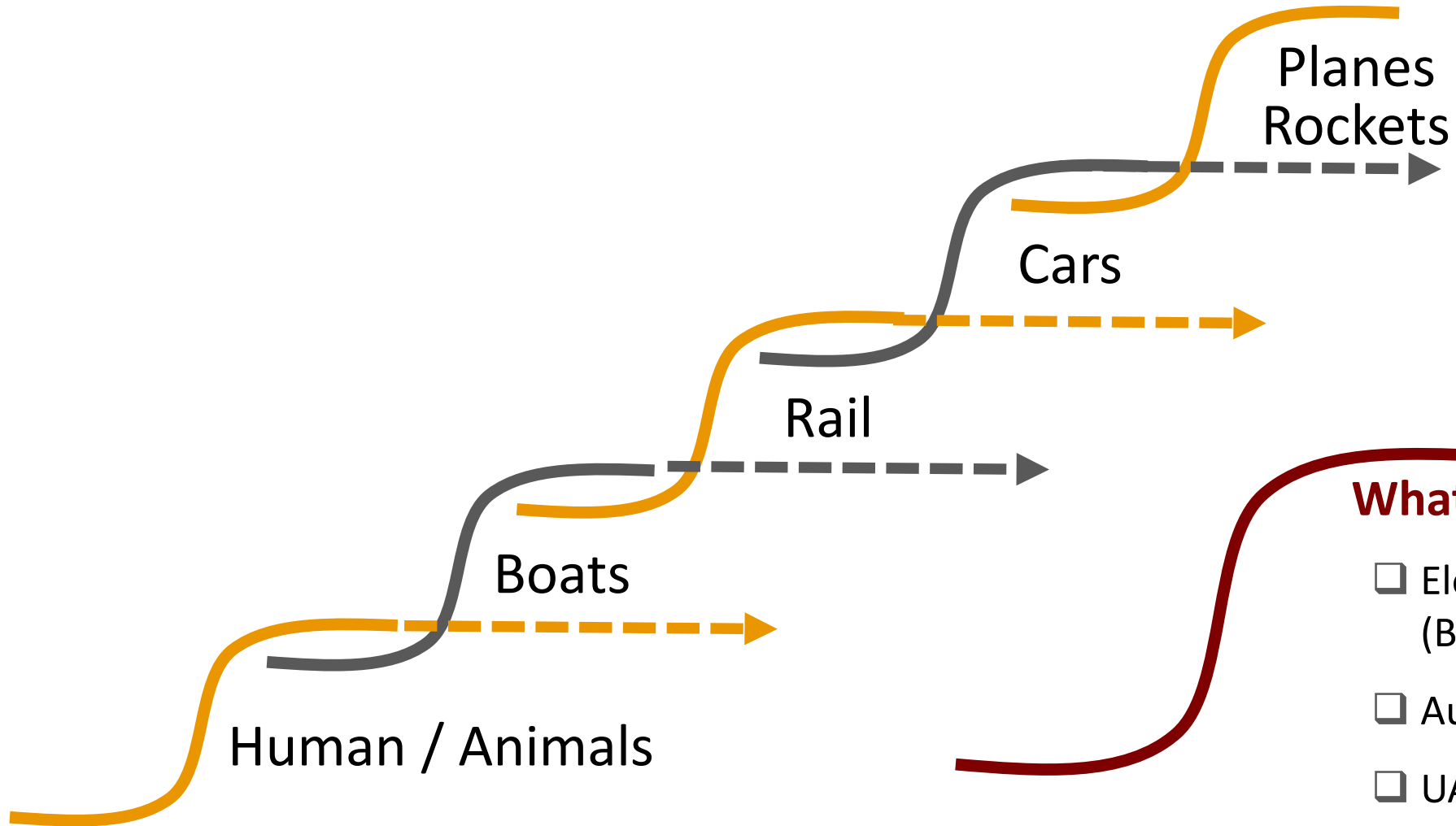
Era-based Industry Transitions



Era-based Look at Industries + Market Transitions



Eras of Mobility

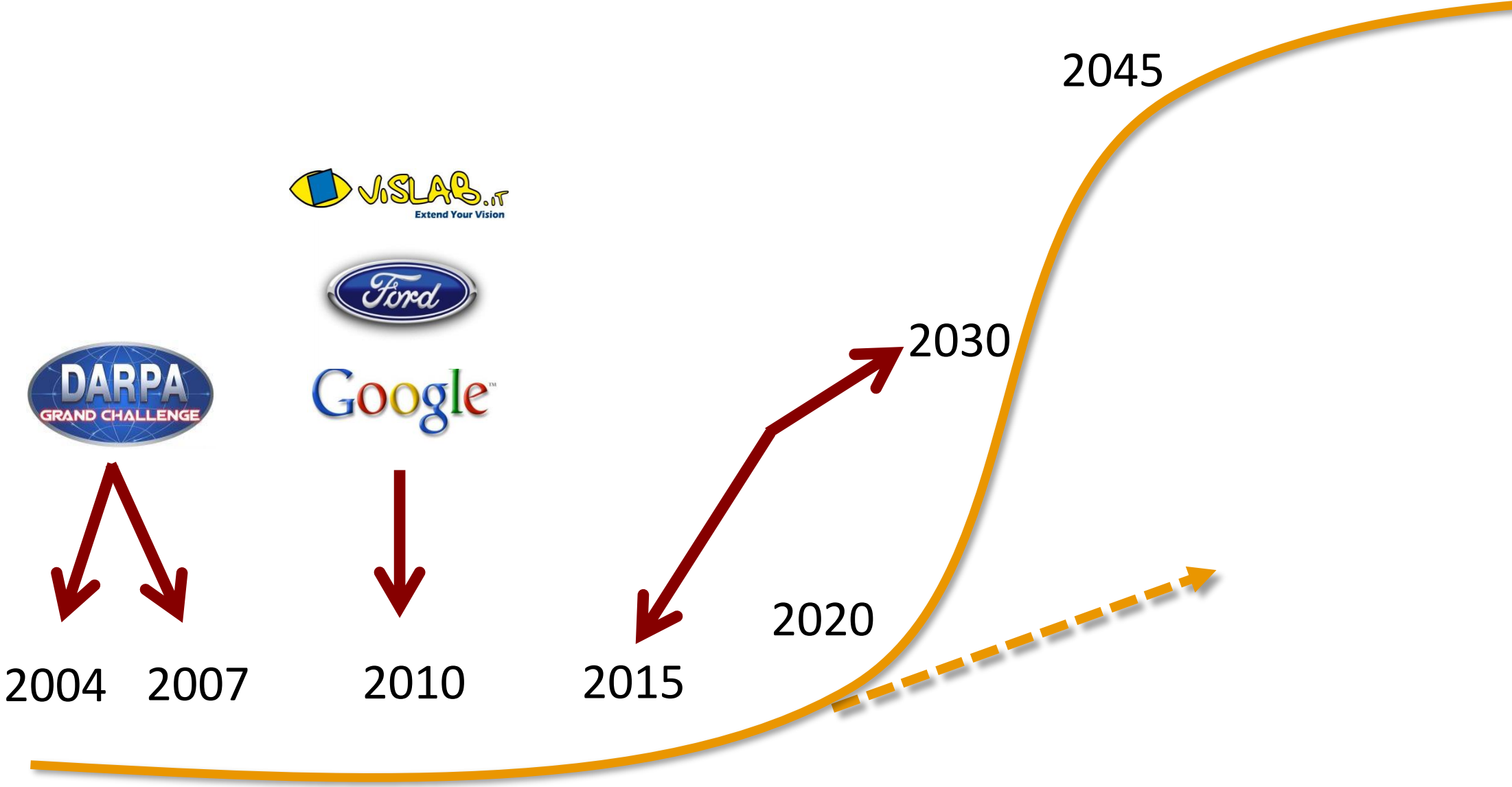


What is next?

- Electric Vehicles
(Battery + Fuel cell)
- Autonomous
- UAVs / Drones
- Sub-orbital Space



Identifying & Monitoring Signals of Change



Over the Horizon Dynamics



Last Mile
Point of Contact



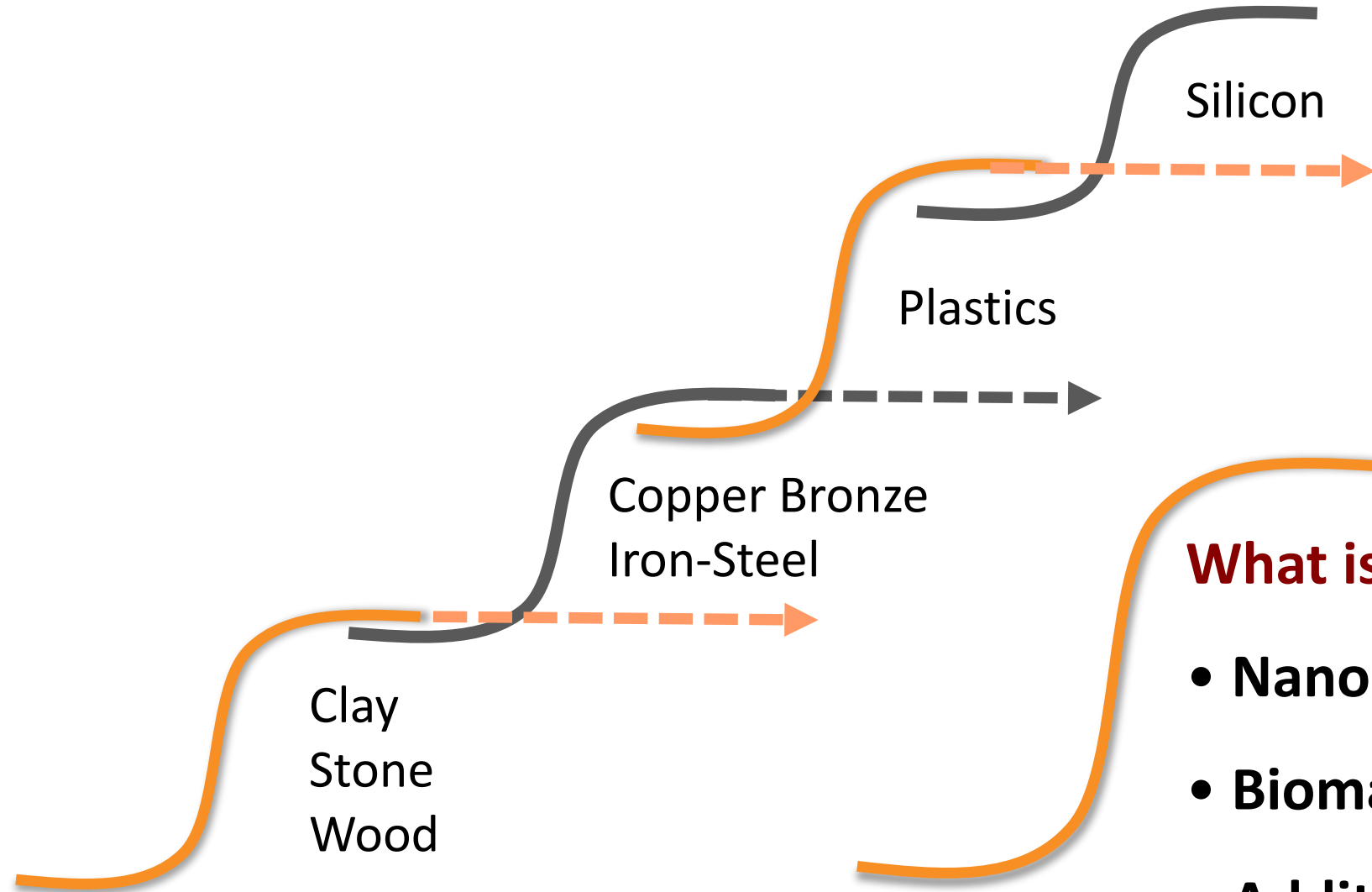
Autonomous
Security Systems



Autonomous
Response Fleets



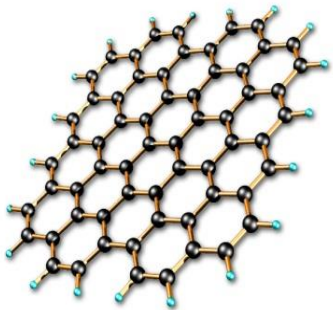
Eras of Materials Manufacturing



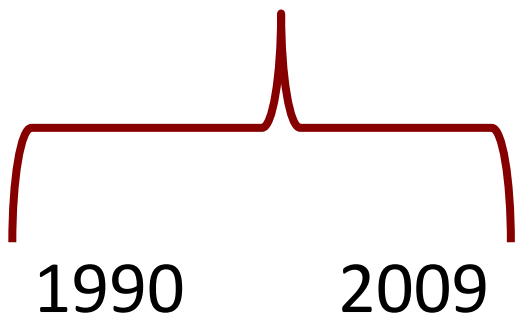
What is next?

- **Nanoscale Materials**
- **Biomaterials**
- **Additive (3D) Printing**

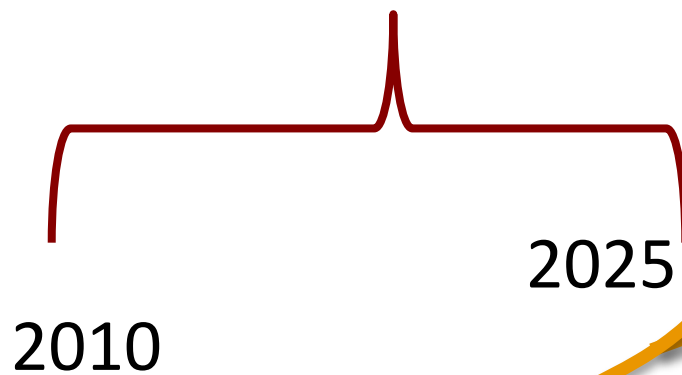




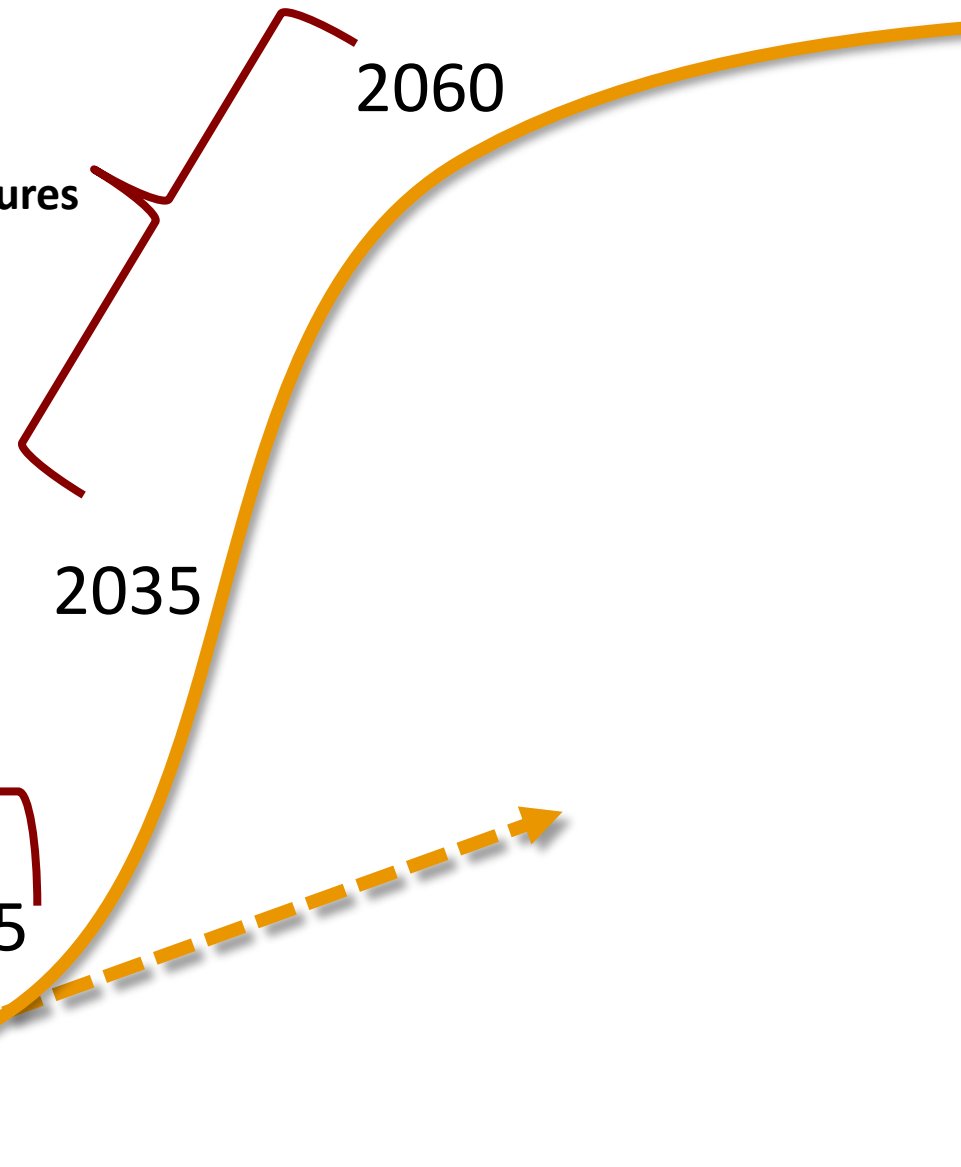
Characterization:
Passive Nanostructures



Functionalization:
Passive Nanostructures



Functionalization:
Active Nanostructures

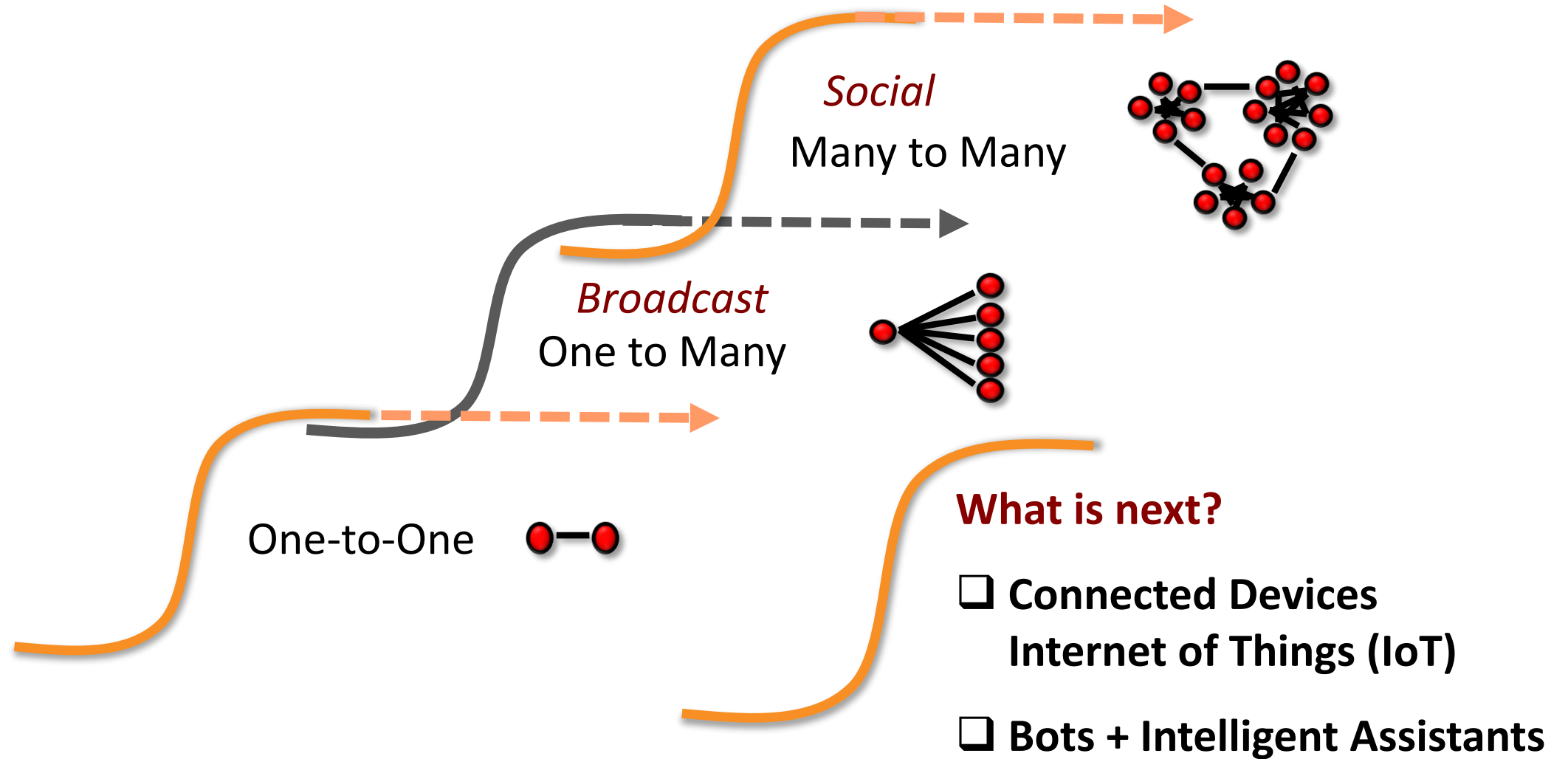


2035

2060



Eras of
Media/Communication



Eras of Venue Energy Systems



Decentralization



Portable Power
Fuel cells

Capability: Always-on Power Systems

Threats: Portable Fuels & Electrochemical Devices



Eras of Telecommunications



Beyond 2020

Capability: Streaming AR/VR/Autonomous Systems

Threats: Streaming AR/VR/Autonomous Systems



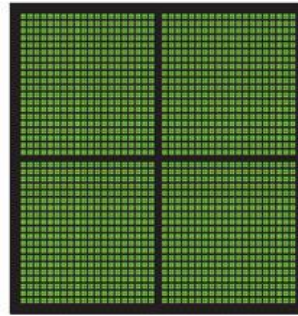
Eras of Processing Power Used in Security Applications



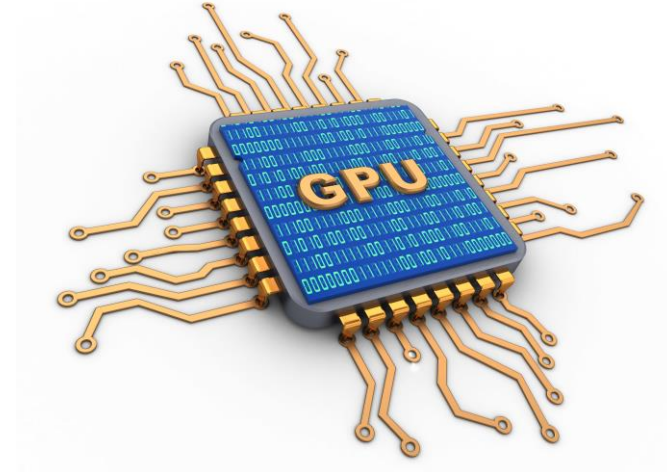
CPUs



CPU
MULTIPLE CORES



GPU
THOUSANDS OF CORES



GPUs

(FPGAs; TensorFlow)

Capability: Unlimited Processing Power for Applications
Threats: Unlimited Processing Power for Applications

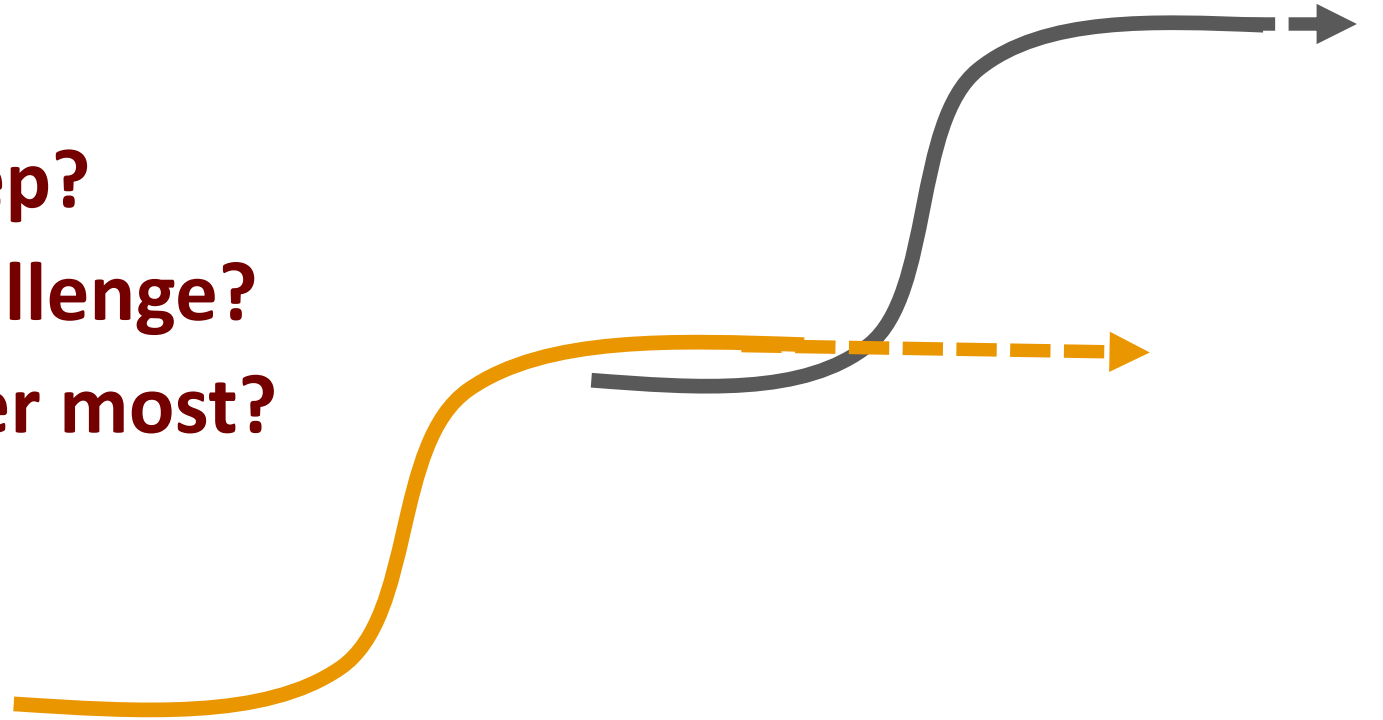


Over the Horizon... Future of Security Field?

What assumptions do we keep?

What assumptions do we challenge?

What signals of change matter most?



Spin the Wheel of Words: *Prepare for Everything*



Attack by Concert
Soccer Game
Shareholder Meeting
GoT Meetup
School Bus Stop

by

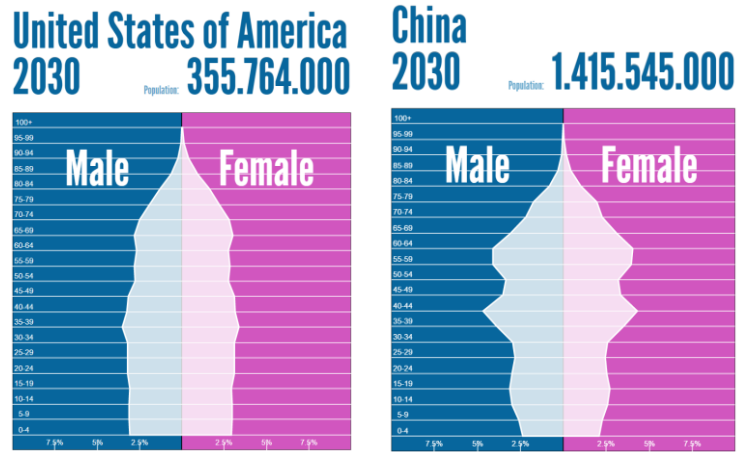
Drone
Disgruntled Worker
Celebrity Hacker
Rogue AI Bot
Terrorist Cell
Robot

using

Swarm of Micro Drones
Nano-Particles
Cyber MITM
Blockchain DApps
Fuels
Neuro-Hardware
Sonic Weapon
Bio Weapon



Drivers of Threats & Capabilities 2018 – 2030



Demographic Destinies



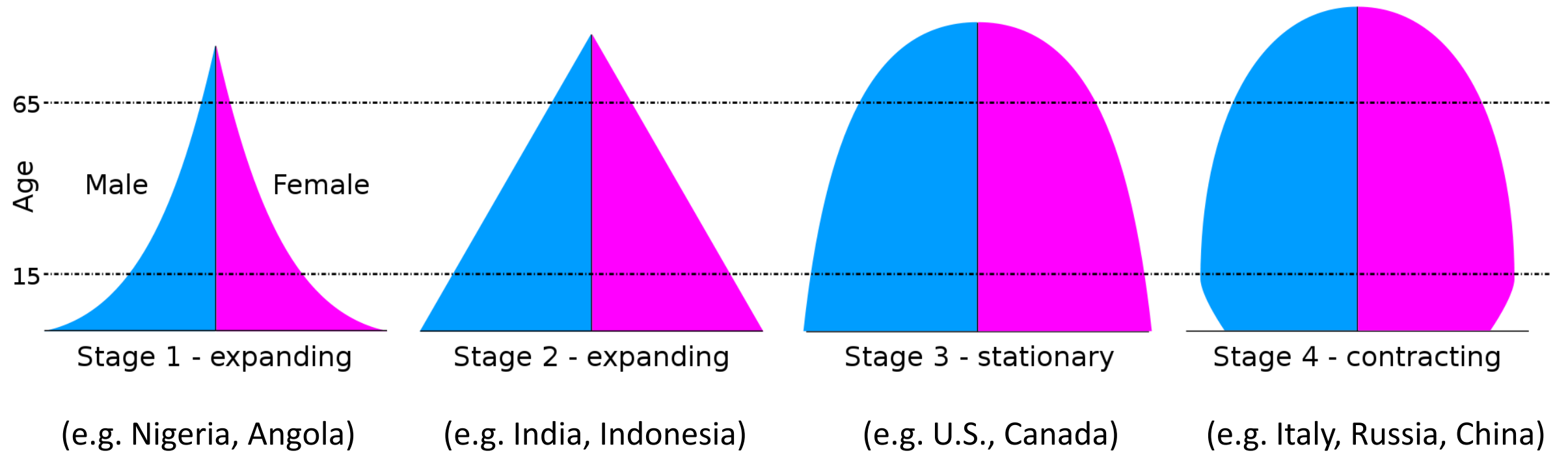
Augmentation + Automation
Data & AI Driven Innovation



Decentralization of Trust
Blockchain & Smart Contracts



Demographics = Destiny

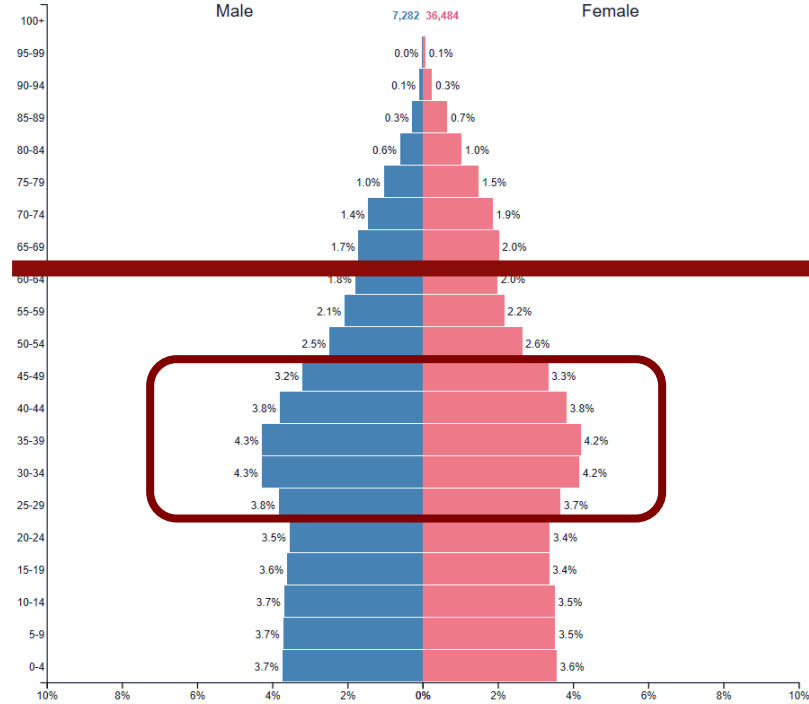


Society Aligns (or Not) to Aging Populations

United States of America ▼

1995

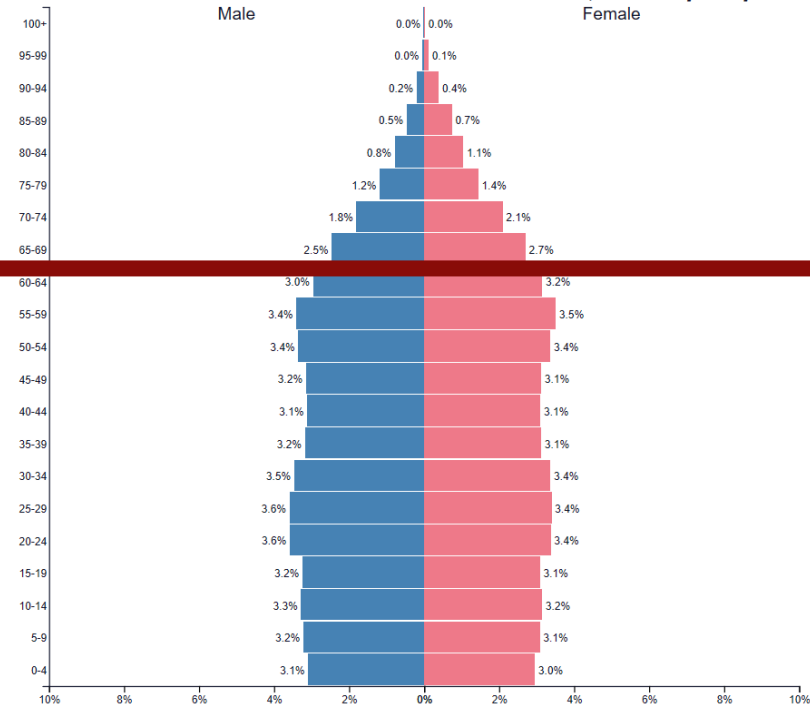
Population: 266,275,528



United States of America ▼

2017

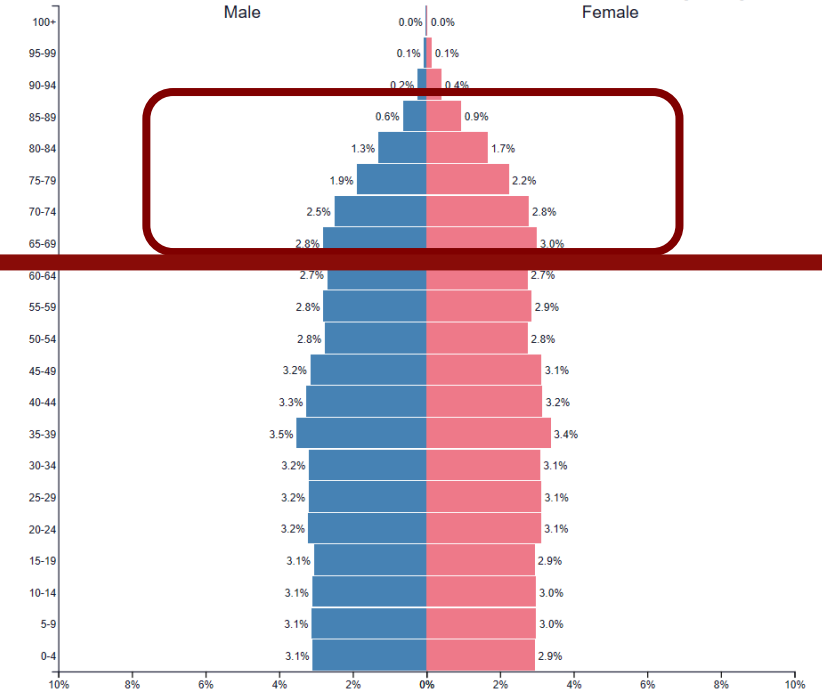
Population: 326,474,013



United States of America ▼

2030

Population: 355,764,966



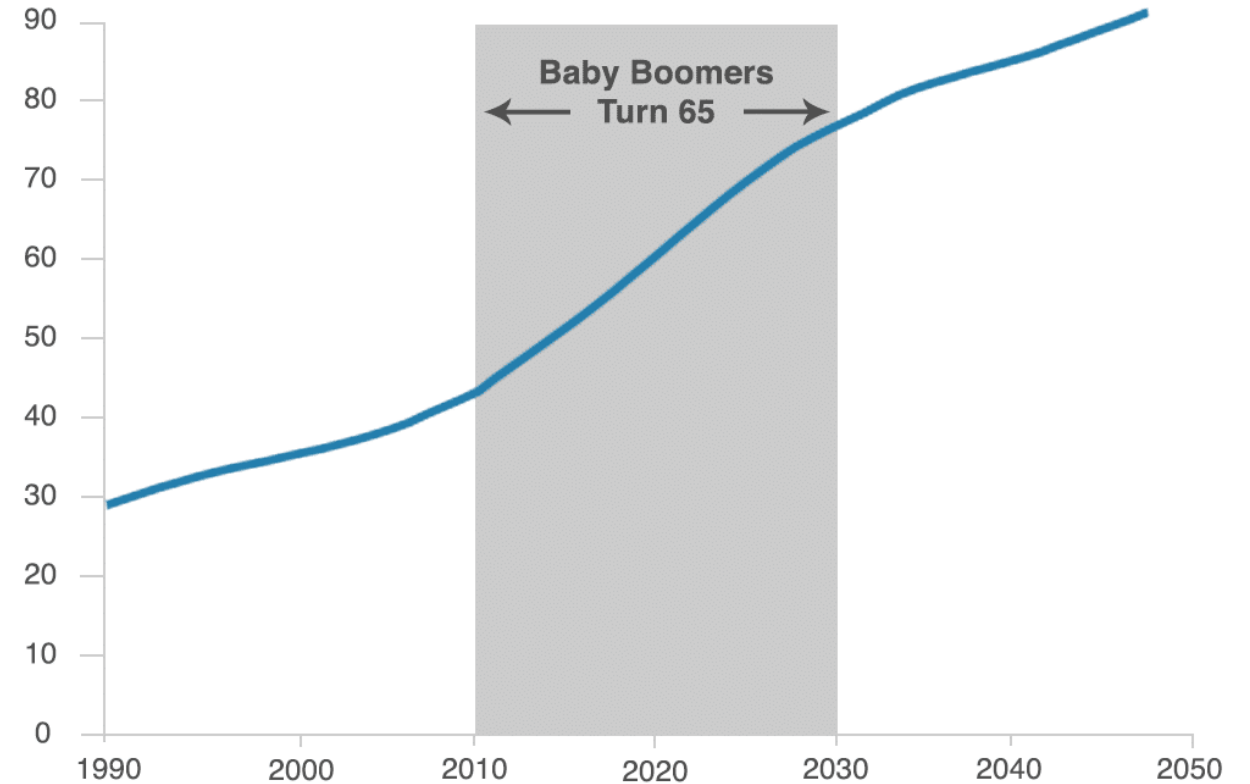
Aging Populations

Breaking Points

- Shrinking Social Circles
- Physical Health
- Cognitive Health
- Financial Stress
- Welcoming Workplace

The Aging of Baby Boomers

Number of People Age 65 and Older (Millions)



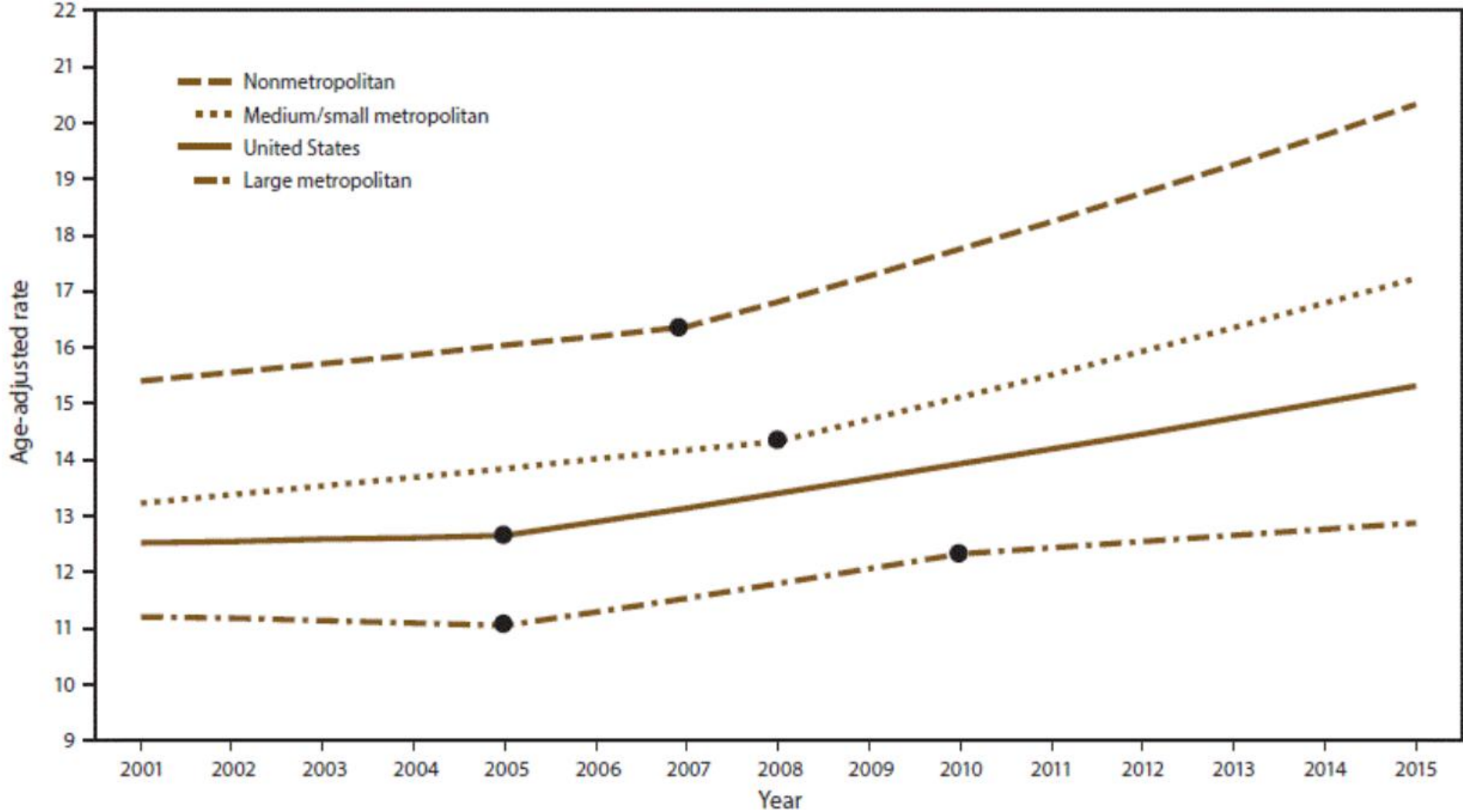
Source: U.S. Census Bureau, *National Intercensal Estimates and 2014 Population Projections*, December 2014.

Note: The highlighted period represents the time span between the years when the oldest and when the youngest of the baby boom generation turn 65.

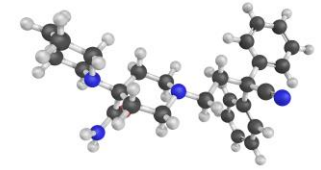


Rural Populations & Small Towns

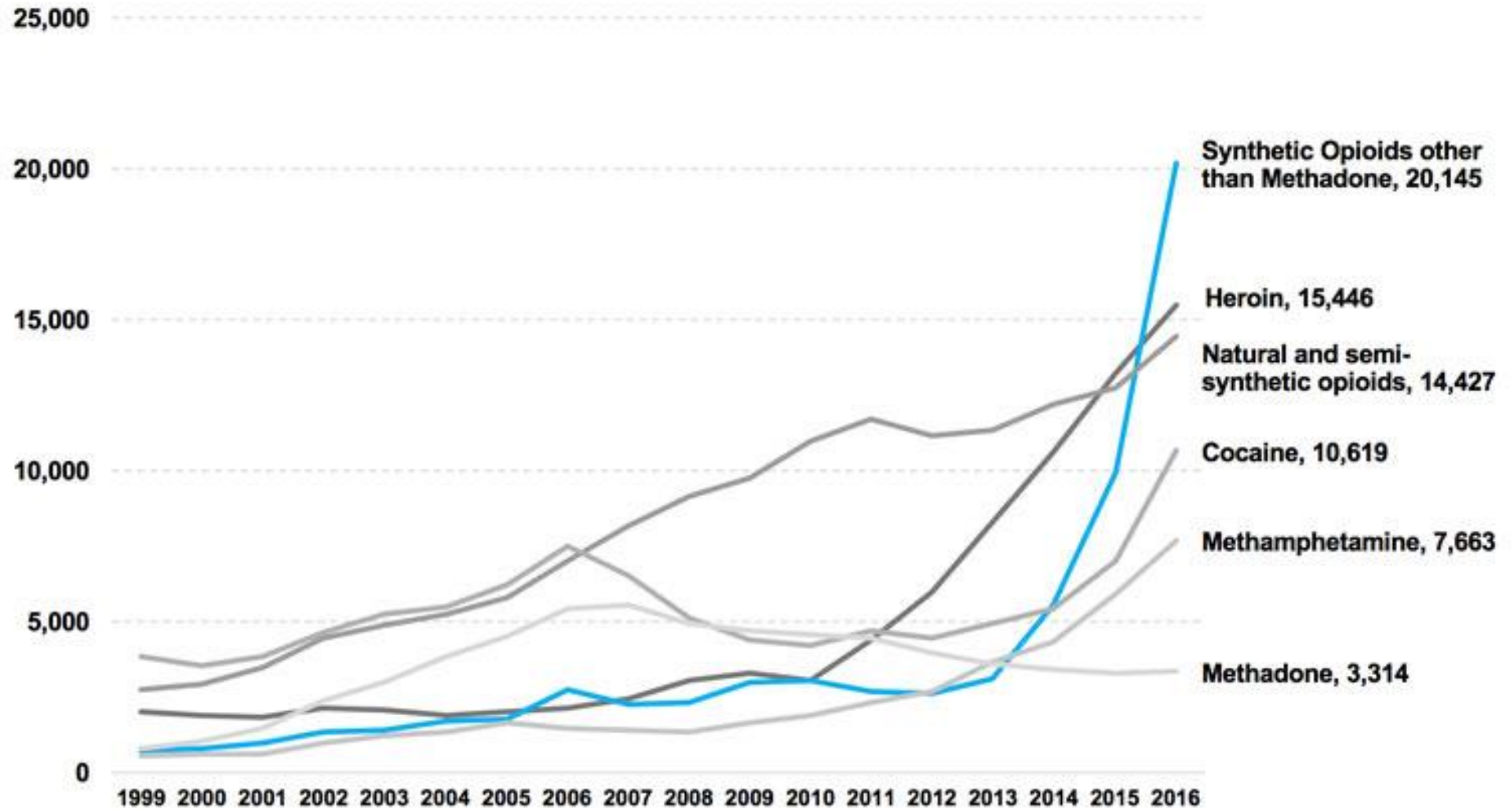
FIGURE 1. Suicide rates* among persons aged ≥ 10 years, by county urbanization level[†] – United States, 2001–2015[§]



Implications of Substance Abuse



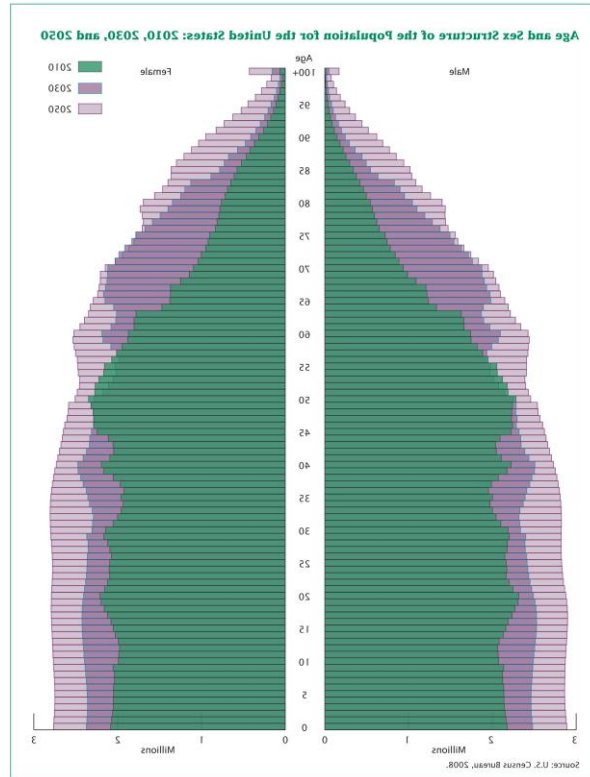
Drugs Involved in U.S. Overdose Deaths, 2000 to 2016



Source: CDC WONDER



Demographics as Destiny

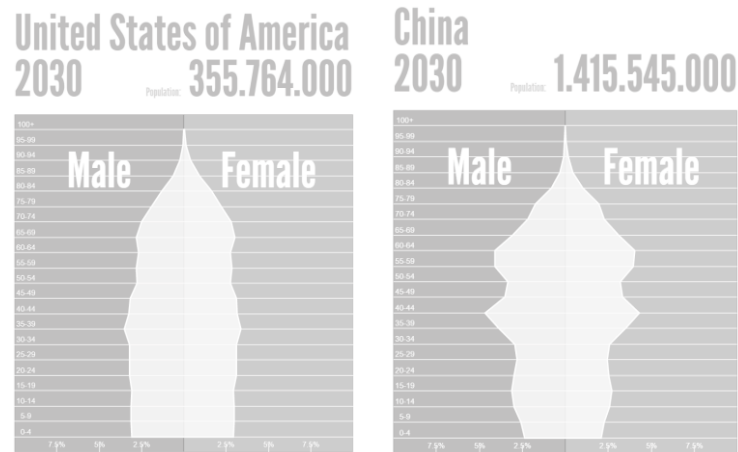


Security Implications for a Shifting Social Fabric

- ❑ **Increased Social Stresses & Pressures**
Implications for Profiling & Prevention
- ❑ **Geographic Implications**
Challenge of Urban vs Rural Memes



Drivers of Threats & Capabilities 2018 – 2030



Demographic Destinies



Augmentation + Automation
Data & AI Driven Innovation



Decentralization of Trust
Blockchain & Smart Contracts





AI
Design for Behavior Change

Why Software is Eating the World...

THE WALL STREET JOURNAL.

By MARC ANDREESSEN

August 20, 2011

Hitachi built an AI security system that follows you through a crowd



QUARTZ

Era of GPU
Deep-Learning +
Computer Vision

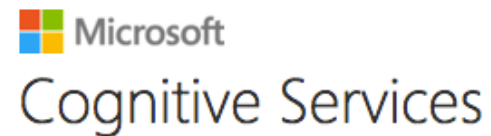


Race to Build Intelligent Assistants

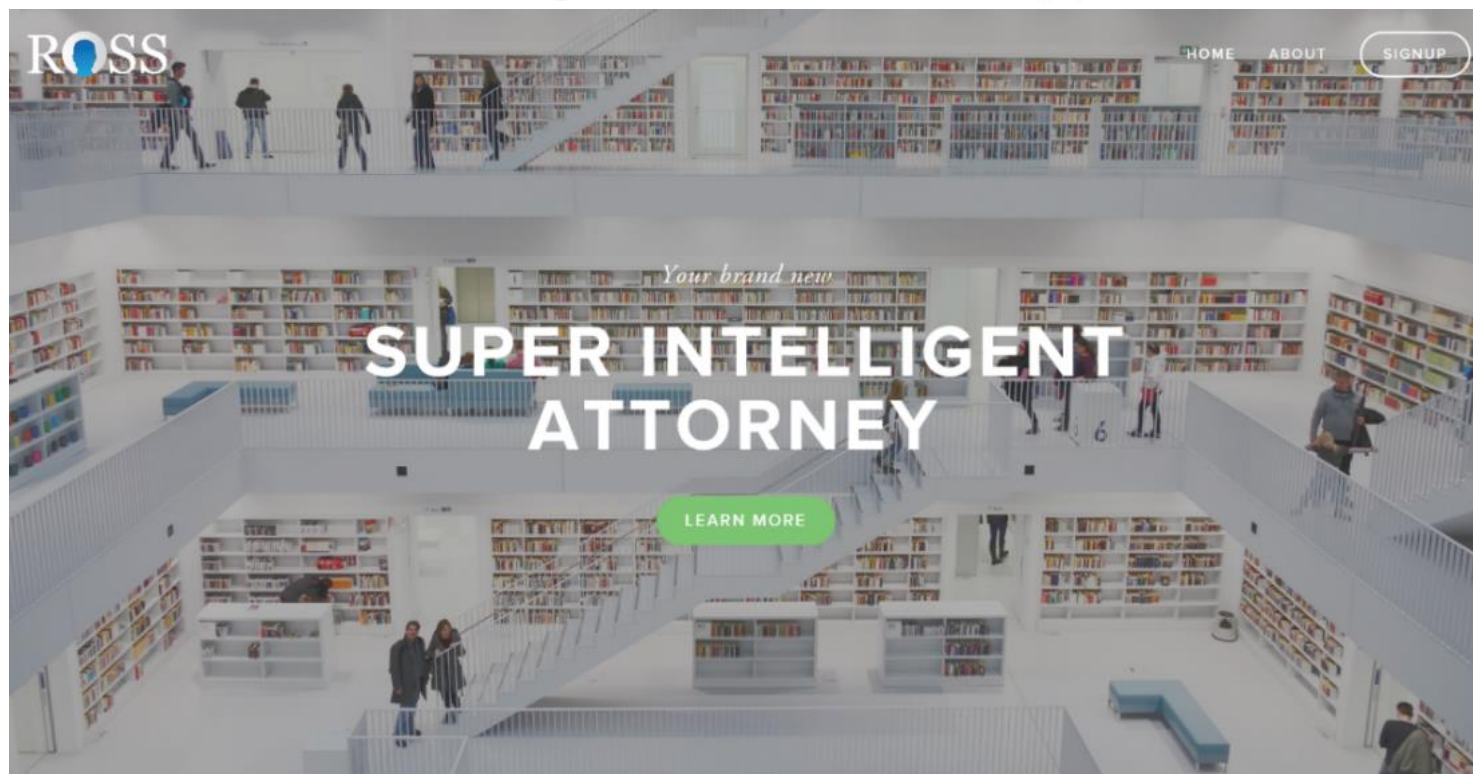


“...it is clear that the most powerful technology companies are investing immense resources to make virtual intelligent assistants ubiquitous before the end of the decade”

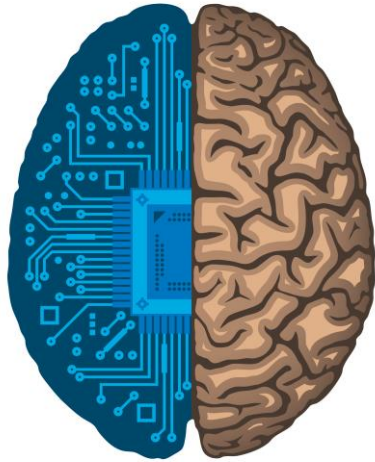
- Daniel Nadler, CEO of Kensho



Phase Two: 2020 - 2027
**AI in the Cloud
Transforms Idea of
Knowledge Work**



(Cognitive-Apps-as-Service)



Assumption to Explore

**By 2022, our teams will
work with Intelligent Assistants**

What is our Bridge Strategy?

Humanizing AI

(Cultures Eats Automation Strategy)

Create Experience Data

(Machine Readable Workflows)



Can we all agree...?

Data isn't truth, but language. It can help us decide or express the truth, but data never is the truth.

- Deanna Day



**Social
Data**



**Health
Data**



**Device +
Infrastructure**

EXPERIENCE
API

“I did this...”

**Learning & Life
Experience Data**

Experience Data Appears Inside Workplace



Course



“I did this...”

Statements



Real World

Seamless Integrated into

- Software products
- Connected Tools
- Manager & Team Tools

How might experience data help improve service quality + outcomes?



Scenario: Talent Embraces Experience Capture Analytics



"I did this..."
Statements

- Lucy *read* an article on virtual reality for aging populations
- Lucy **opened** an Evernote folder on aging solutions
- Lucy *watched* a Youtube video on Social VR Experiences for Aging Boomers
- Lucy *interviewed* the Director of MIT's Age Lab
- Lucy *attended* an MIT workshop on VR simulations
- Lucy *wore* an 'aging suit' at MIT Age Lab
- Lucy *mentored* with the Head of Innovation at AARP
- Lucy *designed* a new VR social space using Facebook Oculus dev kit
- Lucy *demonstrated* her VR experience for Aging populations at a NYC Meetup
- Lucy **won** an Webbie award for Social VR platform
- Lucy *wrote a blog post* highlighting VR social engagement for seniors
- Lucy *taught* a Coursera MOOC on Universal Design and VR experiences
- Lucy **was hired** as head of Social VR for Aging Populations at Facebook



Security Workforce Analytics for Augmentation & Automation



Real-world Data Sets



VR Simulations Data Sets

EXPERIENCE
API

Assumption to Explore

**By 2022, Experience Data Will Become
Our Most Valuable Internal Asset**



“I did this...”

Statements

How do we approach regulatory?

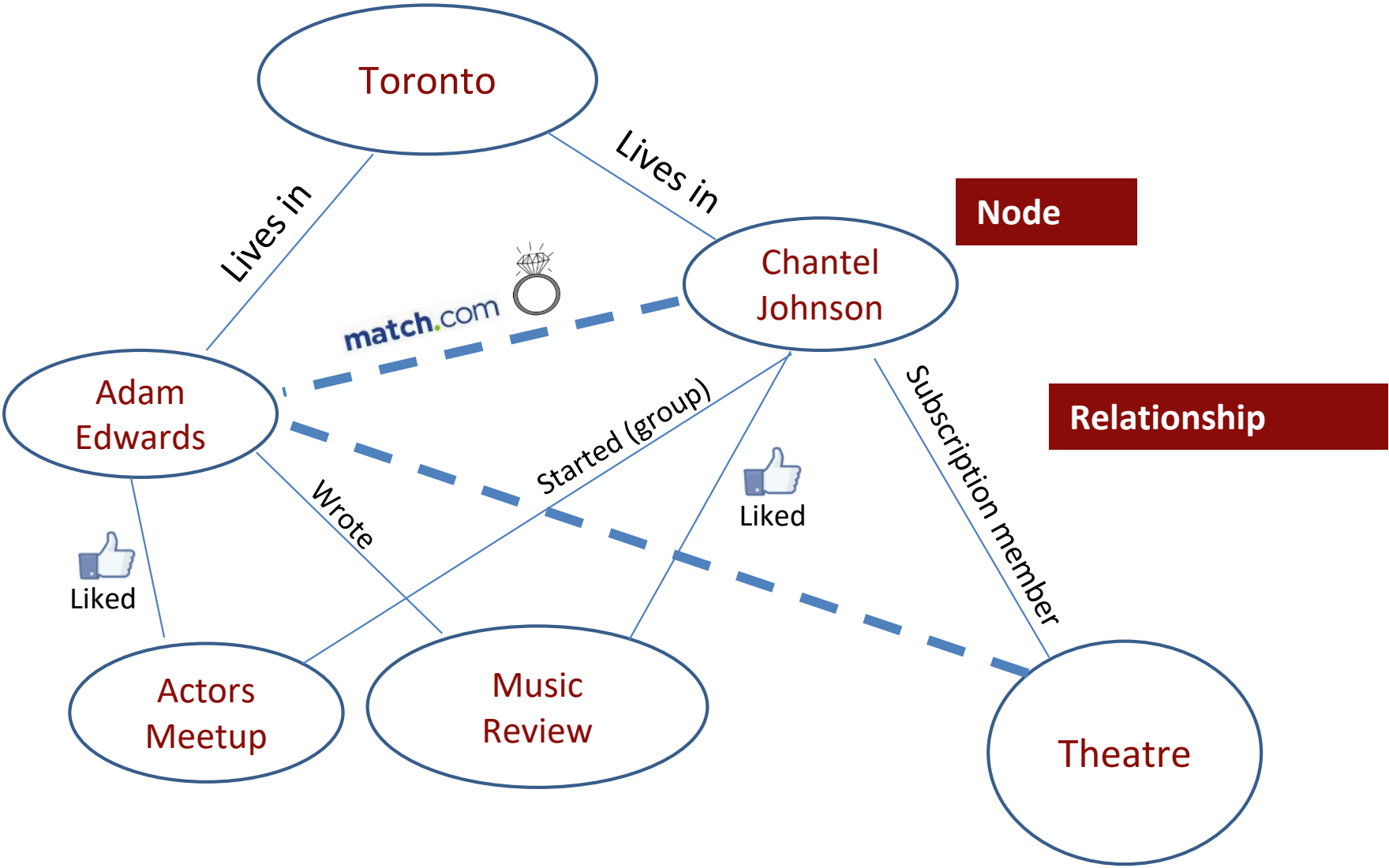
How do we make sense of it?

How do we avoid the creepy line?

How do we structure the data?



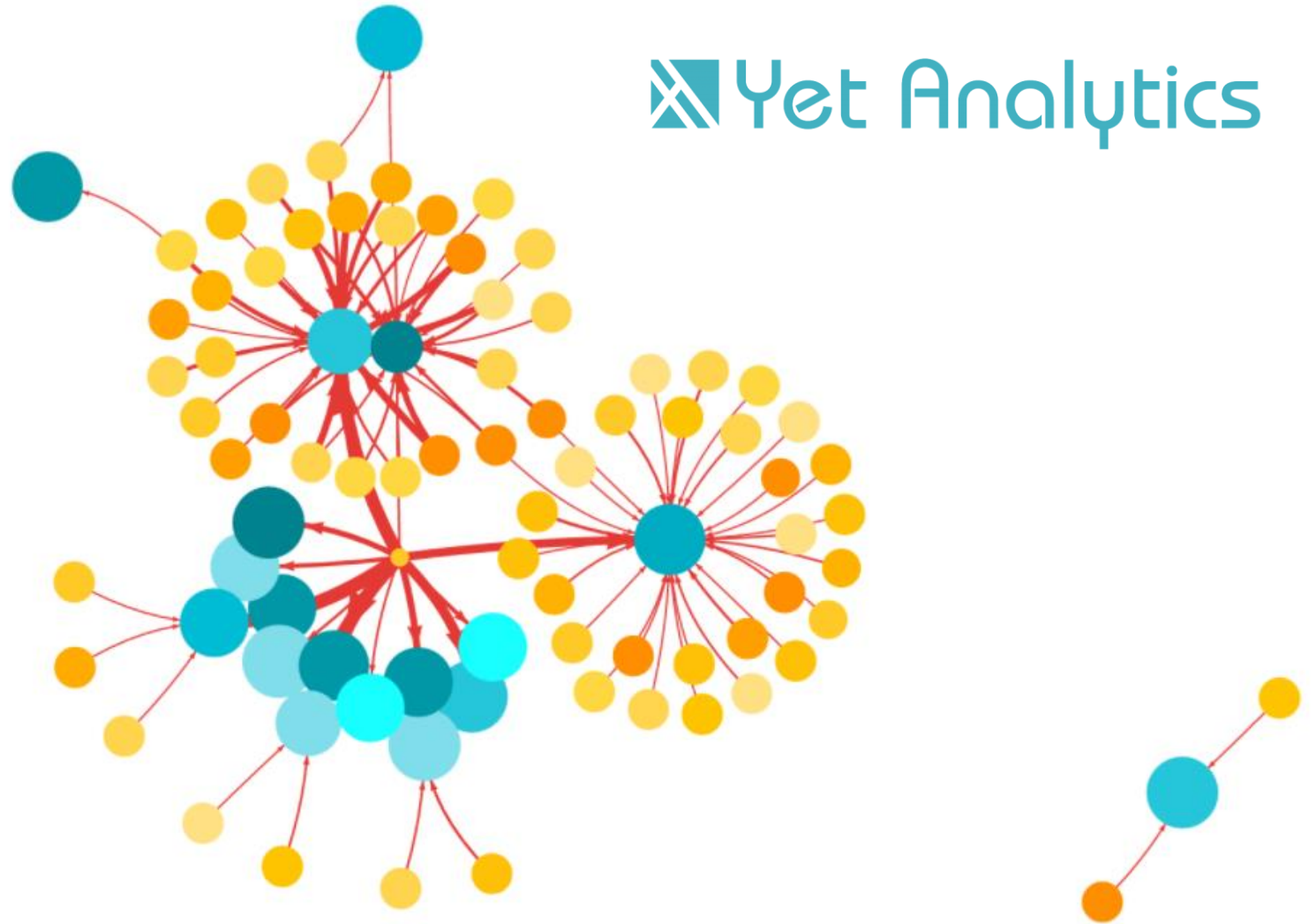
Graph Database = Understanding Relationships, Connections + Pathways





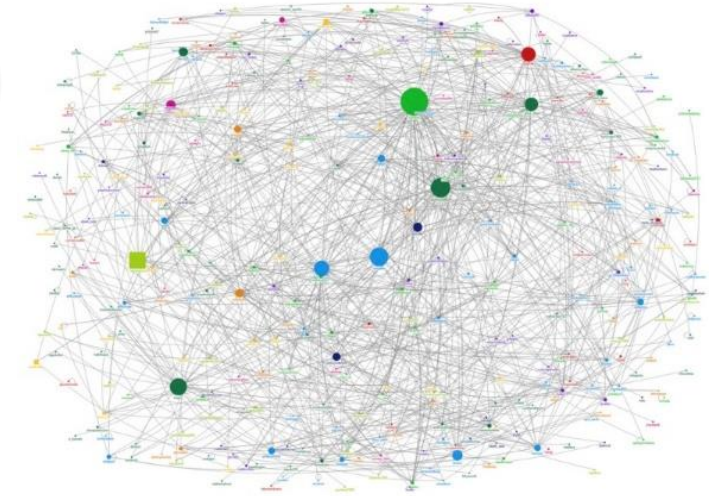
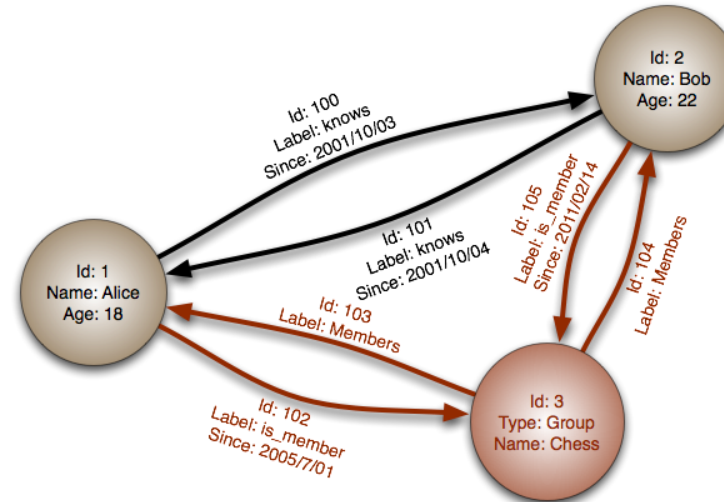
Yellow are people. Blue are the things they do.

 Yet Analytics



Understanding How Our Organizations Operate...

Connected Data Continues to Transform the World

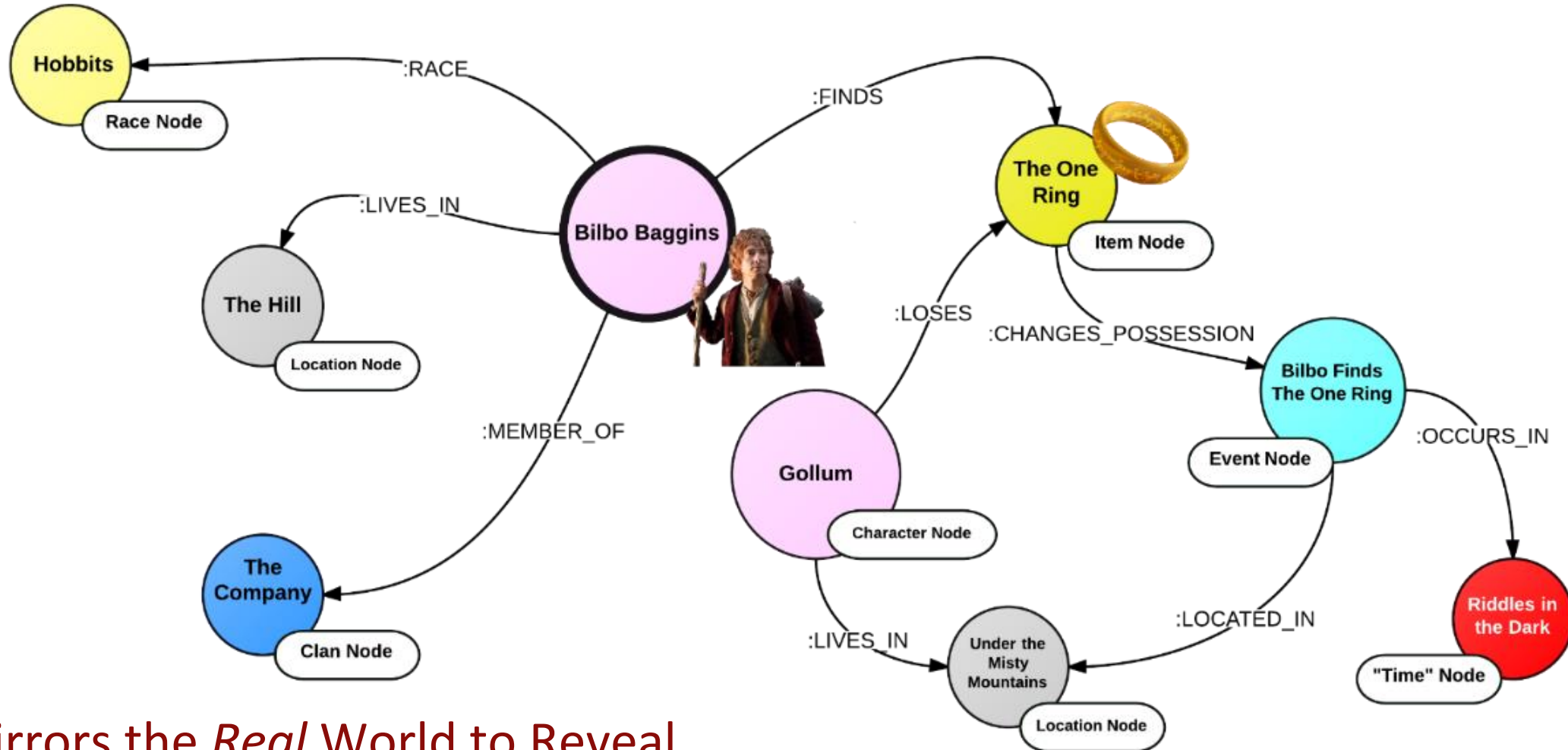


Value of our
Social Graph

Entering an Era of
Experience Graph?



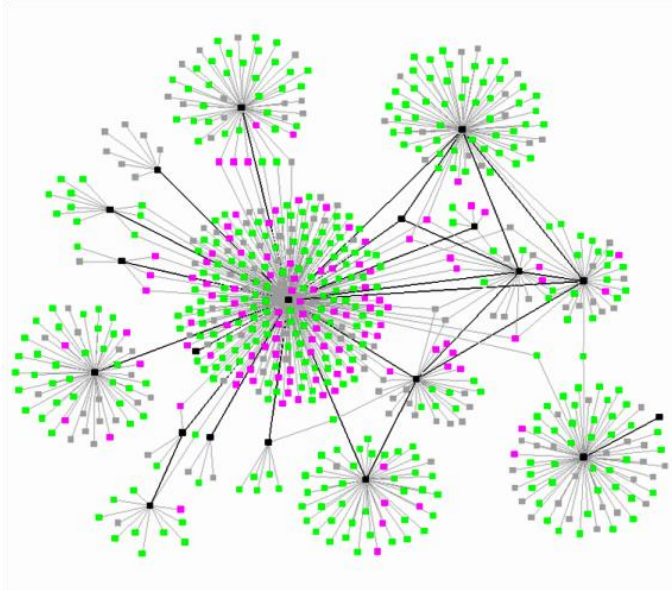
How might we create an Experience Graph strategy for Security?



Mirrors the *Real World* to Reveal Influencer Profiles, Decision Pathways and Recommendations



How might an *Experience Graph* future transform security services?



EXPERIENCE
API

- ❑ **Experience as Data Asset Class**
xAPI as AI training dataset
- ❑ **Performance Support As-a-Service**
Set up conditions for Internal + External Solutions
- ❑ **Potential Challenges**
I know you are thinking: 'We are Regulated Business'
Creepy Line Kills Culture
Integration or Adoption Stalls



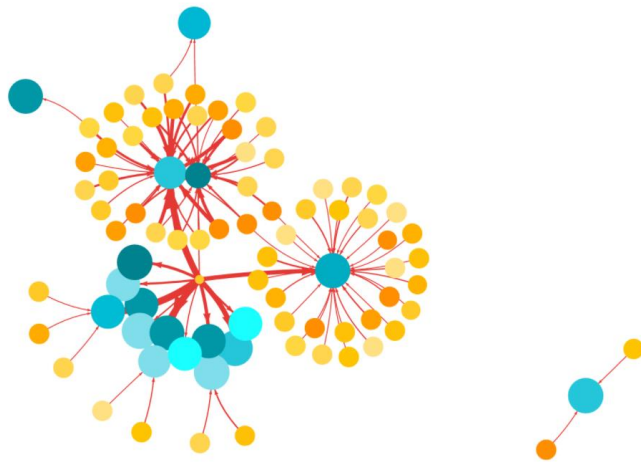
Will the Industry have a Security Graph(s)?

Members – Companies – Jobs – Skills – Schools – Knowledge



Why Software is Eating the World...

Yellow are people. Blue are the things they do.



Security Workforce Implications of Augmentation and Automation

- Aligning to *Software Eats Security*
- Develop Training Datasets for AI
- Culture Shift to Experience Analytics (xAPI)



Rethinking Trust, Identity and Community



**Blockchain, Smart
Contracts & Tokenization**





World Economic Forum Survey Projects Blockchain 'Tipping Point' by 2023

By 2025, 10% of of Global GDP will be orchestrated by blockchain applications.



Remember, It Was Hard to Explain the Internet in 1994



1994: "Today Show": "What is the Internet, Anyway?"

All descriptions failed:

- It's a billboard
- It's a massive network
- You write to it, like mail*
- Great for emergencies
- 'You don't need a phone line to operate the Internet?'



Evolution of the Web



*Internet of
Files*



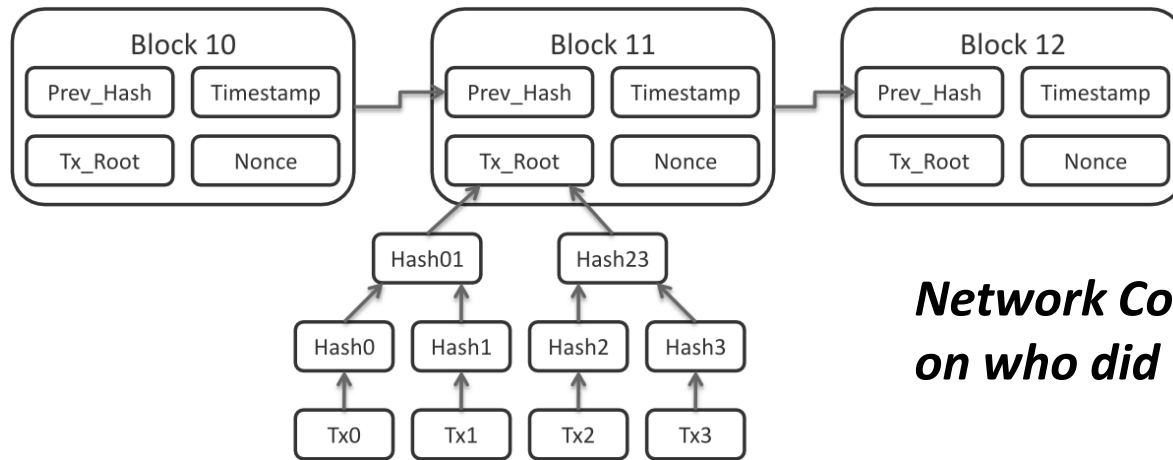
*Internet of
Social Networks*



*Internet of
Trusted Transactions*



Creating Trust in Un-Trusted Environments



**Ledger of Keys &
Asset Transactions**

***Network Consensus
on who did what...***

A sample of EtherScript

```
note: ***An Ethereum smart contract to sell website for "5000 by March"  
note: First, store buyer's ethereum address:  
put: 6af267736363738ghgs7726337373737 in storage slot BUYER  
note: Then, store seller's ethereum address:  
put: 6af267736363738ghgs7726337373737 in storage slot SELLER  
note: April 1, 2014 is 13929839948 in "computer time"  
put: 16365437465 in storage slot DEADLINE  
note: If the agreed amount is received on time...  
When: transaction value ≥ 50000 ether  
and  
block timestamp ≤ storage slot DEADLINE  
then  
note: ... then designate the buyer as the new website admin and pay the seller  
put storage slot BUYER in storage slot WEBSITE_ADMIN  
Spend contract balance to storage slot SELLER
```

**Smart Contracts for
Business Process Automation!**

T = 0



Blockchain Use Case: Marketplaces

Decentralized exchanges to disrupt the traditional third-party role. *Low fees may still apply.



iTunes

without iTunes

Smart Contracts disperse payments



OpenBazaar

ebay

without ebay

Distributed Marketplaces



BROOKLYN
MICROGRID

Energy

Trading Network

P2P Energy Trading



Blockchain Use Case: Healthcare



**Medical Devices &
Pharma Supply Chains**



**Revenue Cycle
Management**



**Personal
Health Records**

Blockchain Use Case: Government Services



Governments reduce the cost and complexity via:

- Identity

(Passports; Birth certificates; Small Business)

- Asset Registries (including land)

- Voting

- Regulatory + Compliance Automation

- Community Crypto Currencies (Financial inclusion)

- Cyber Security / Access Control to Documents

Blockchain for Large Venue Events



**Event Ticketing
Marketplace**

BLOCKTIX

 **SecuTix**

 **UPGRADED**

Aventus

**say farewell to
secondary ticket fraud
& disgraceful prices**



GUTS

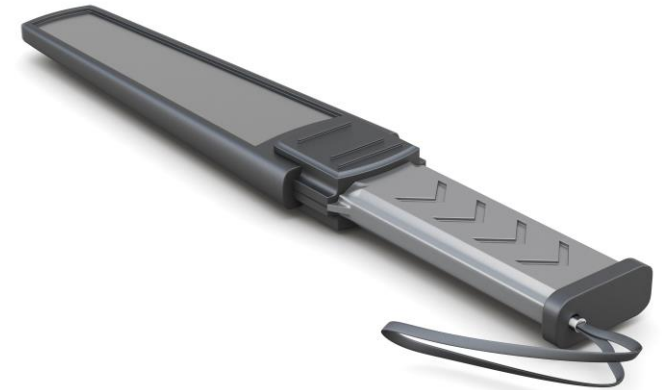
GUTS is a ticketing system which uses blockchain technology to register ownership of SMART-tickets. GUTS makes ticket fraud impossible. The ticket can only be resold at a fixed price, so no more disgraceful prices for (secondary) tickets.



Blockchain for Large Venue Events



Credentials



IoT Security Layer



Radical Notions of Data Sharing



NUMERAI

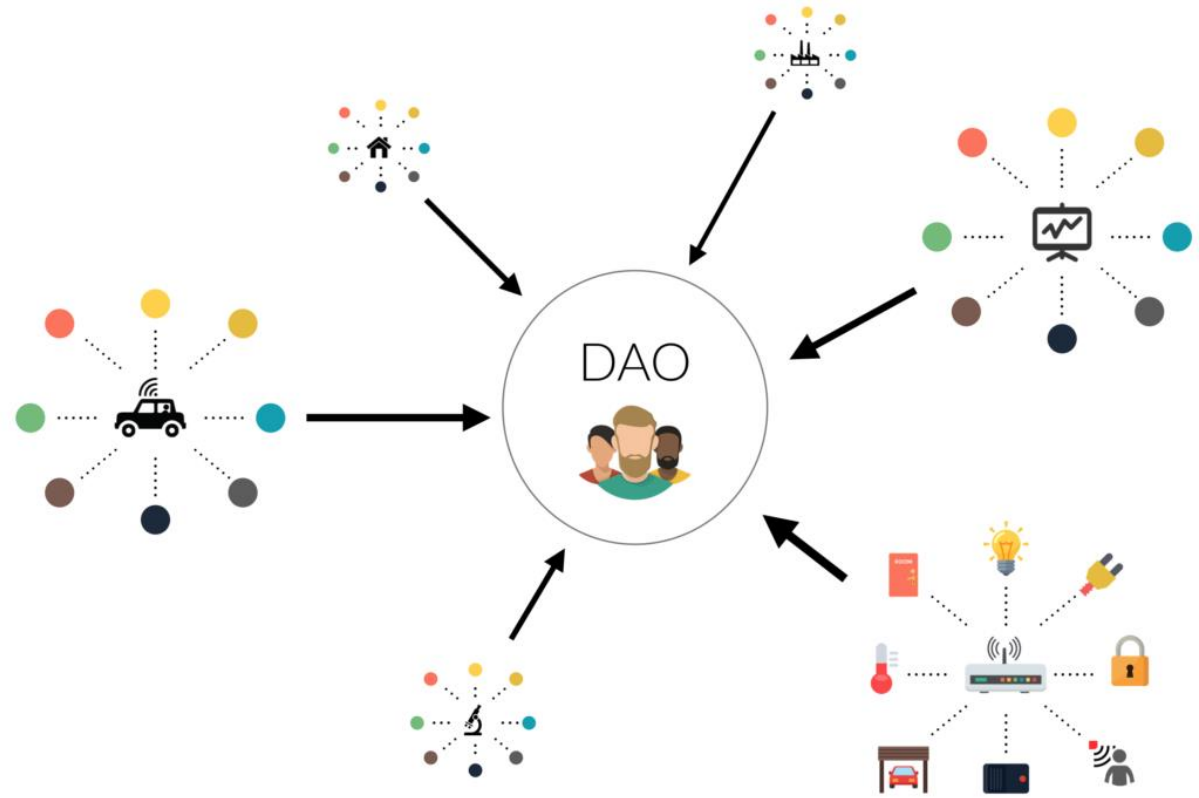
Hedge Fund

Security Services based on

- Secure Sharing of Encrypted Data
- Collaborative Risk Models
- Talent from Data Scientists & Quants

Blockchain: Known Unknowns of Future

**Decentralized
Autonomous
Organizations**



I don't
like the
future...





Every day I make an effort to go toward
what I don't understand.

Yo-Yo Ma

Step # 1

Create a Healthy Sense of Urgency & Culture Aligned Around Anticipation

*On the Plateau
'Managing the Decline'*

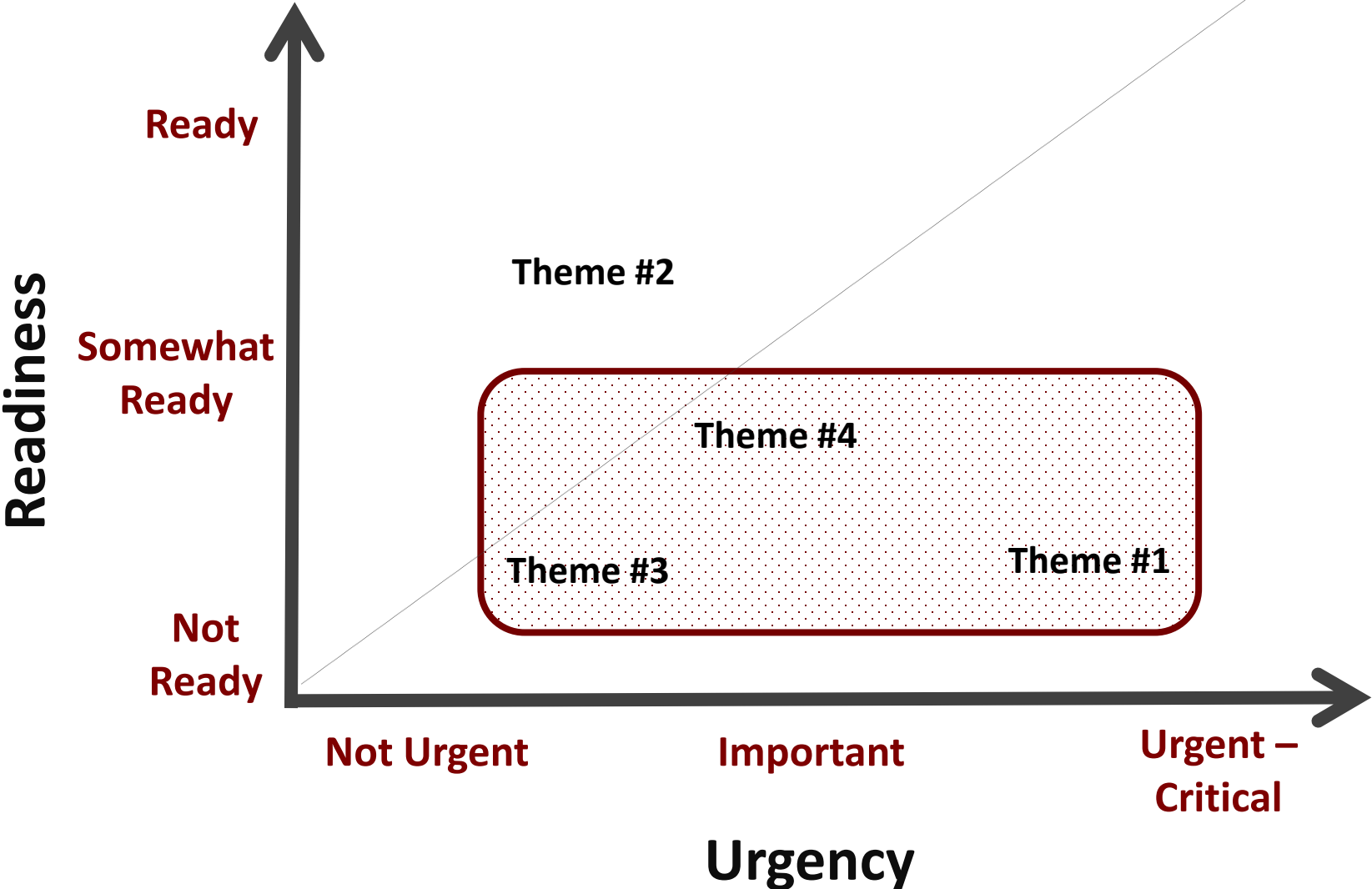
- Incumbent mindset
- Incremental Improvement
- Fear, Uncertainty, Doubt & Denial

*Big Bets,
Small Steps*

- Entrepreneurial mindset
- *Prototyping*
Transformative Change
- *Failing Forward*

Step #2:

Take a Pulse Check on Emerging Trends vs Organizational Appetite

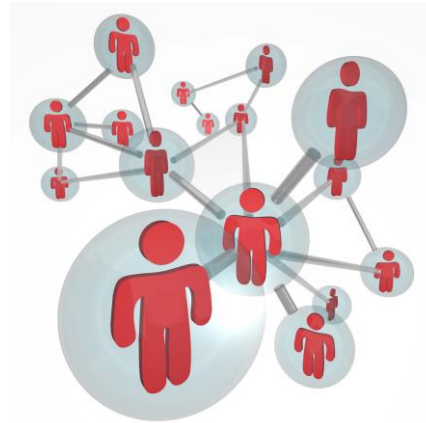


Step #3

Start a Signals Team: Follow Those Who Imagine Different Futures



**Blockchain &
Smart Contracts**



**Graph Analytics
*Connected Data***



@onboardhealth

**Industry Issues on
Talent Development**



Step #4

Find the Right 'Killer Questions' to Brainstorm Ideas

Following the success of HP's Chief Innovation Officer Phil McKinney, generate a weekly 'Killer Question' email message or 'Twitter' conversation that spurs conversation about security services and event experiences.

What is a security function that does not exist today but will be our most innovative lever of change in five years?

Which popular consumer brand today could make us irrelevant in five years?





Garry Golden
garrygolden@gmail.com
Two Rs

www.garrygolden.com/Oct12

