Foresight 101

Demographics as Destiny, Meets Technology the Disruptor

Baruch COLLEGE CUNY

October 17, 2018

@GarryGolden

Start *End*

Warm up
Foresight 101

Standing at
Intersections of Change

Next Steps
Discussion

More or Less Change Ahead?

Last ten years

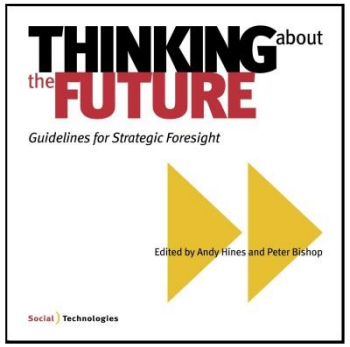
2007 – 2017

Next ten years

2018-2028

Things that **will not go away**:
Expression + Creativity; Places for Face-to-Face Time;
Children + Story time; Reading for Pleasure; Printed Books

UNIVERSITY of HOUSTON



School

2003-05

the Futures Lab

futurethink

andspace consulting

Fast Future
Accelerating Innovation

Mentoring + Training

2006 - 10

Microsoft

ALLIANT ENERGY

PEPSICO INTERNATIONAL

Texas Department of Transportation

GOODYEAR

Fidelity INVESTMENTS

AMERICAN EXPRESS

accentureoperations

Learning the Craft

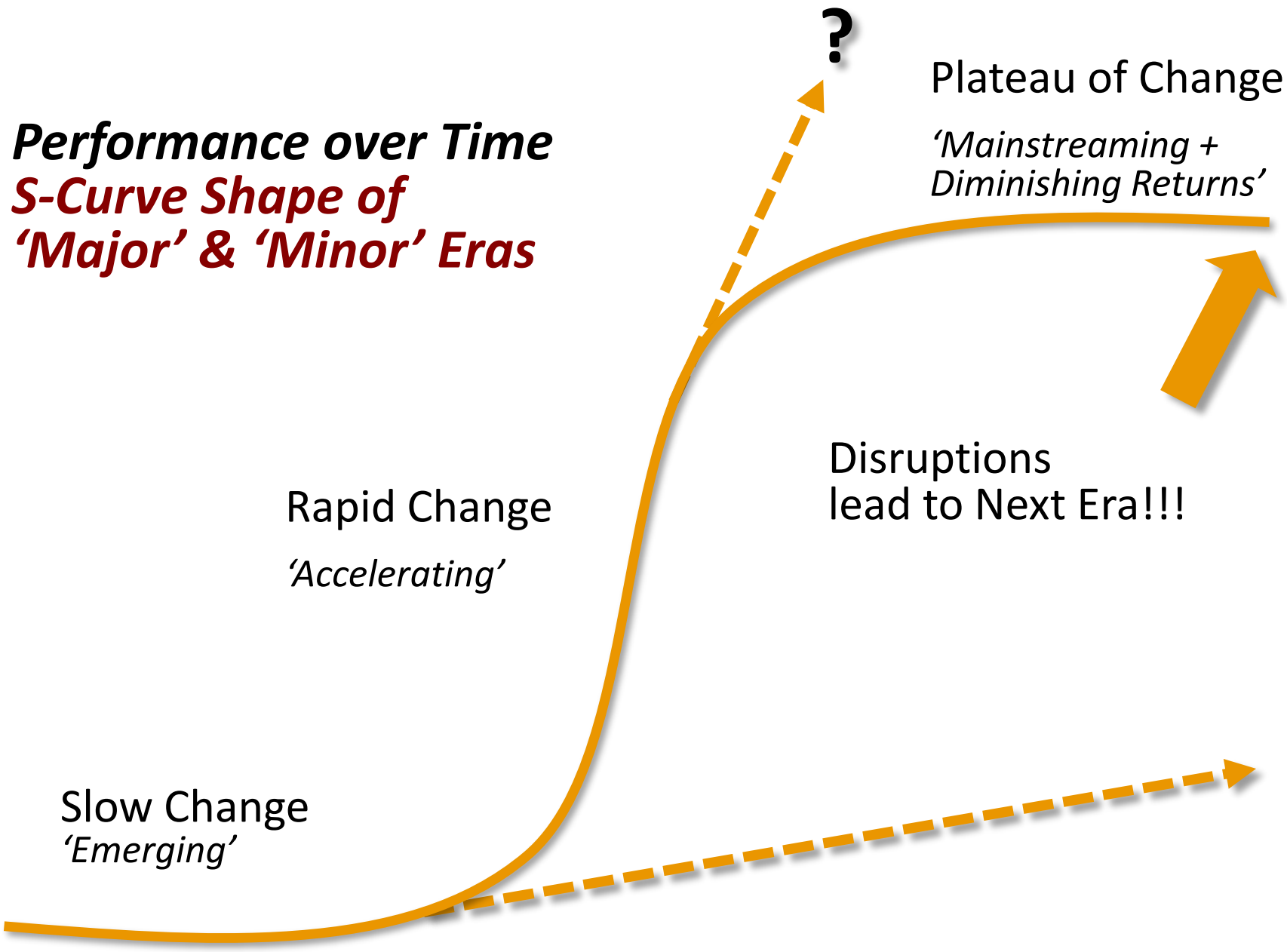
2010 – Present

Foresight *as the Front End*…

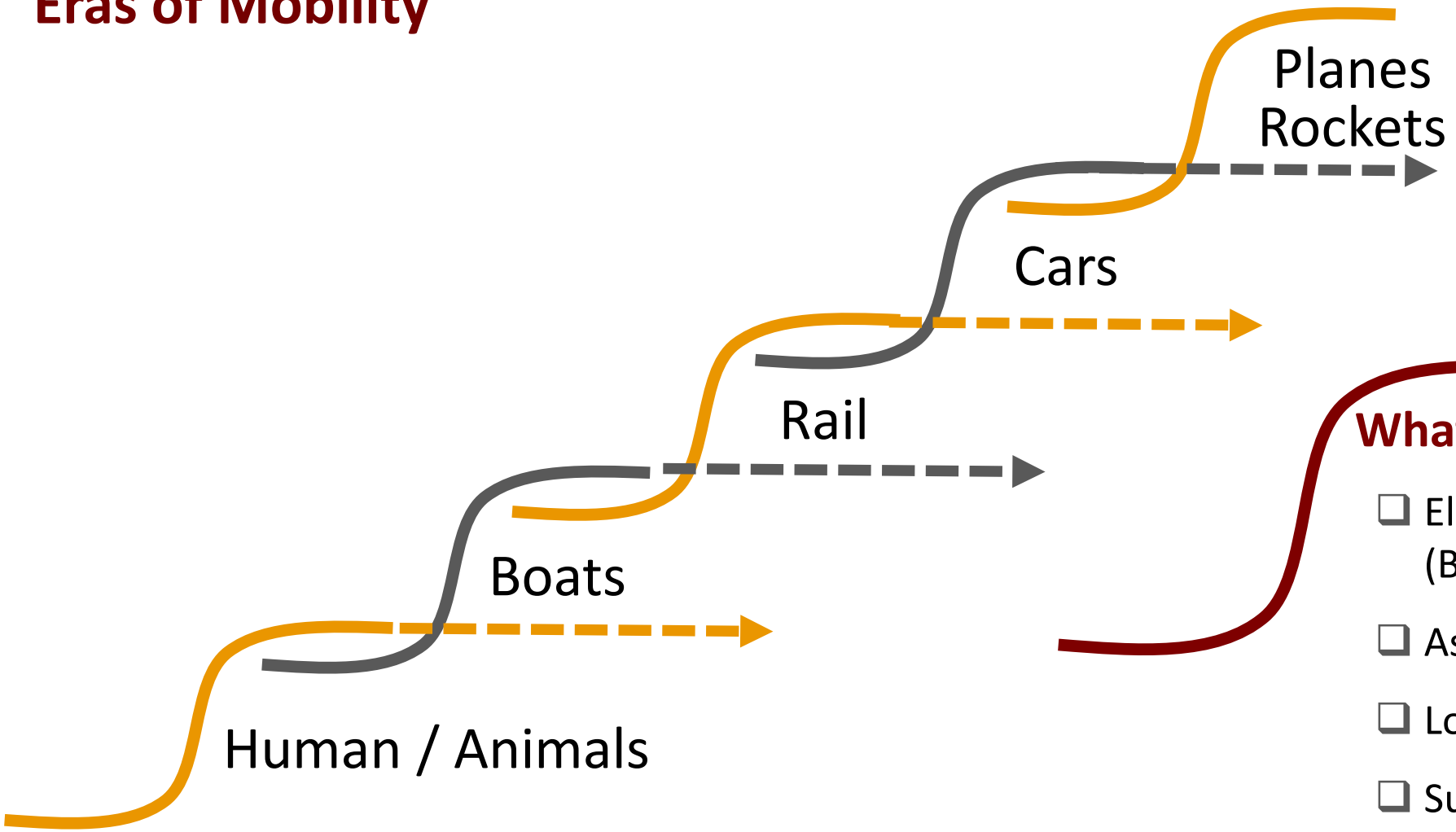
of Innovation + Strategy

Foresight = Front end of Innovation

Era-based Growth Strategies


Performance over Time
S-Curve Shape of
'Major' & 'Minor' Eras
?
Plateau of Change
'Mainstreaming +
Diminishing Returns'
Disruptions
lead to Next Era!!!
Rapid Change
'Accelerating'
Slow Change
'Emerging'

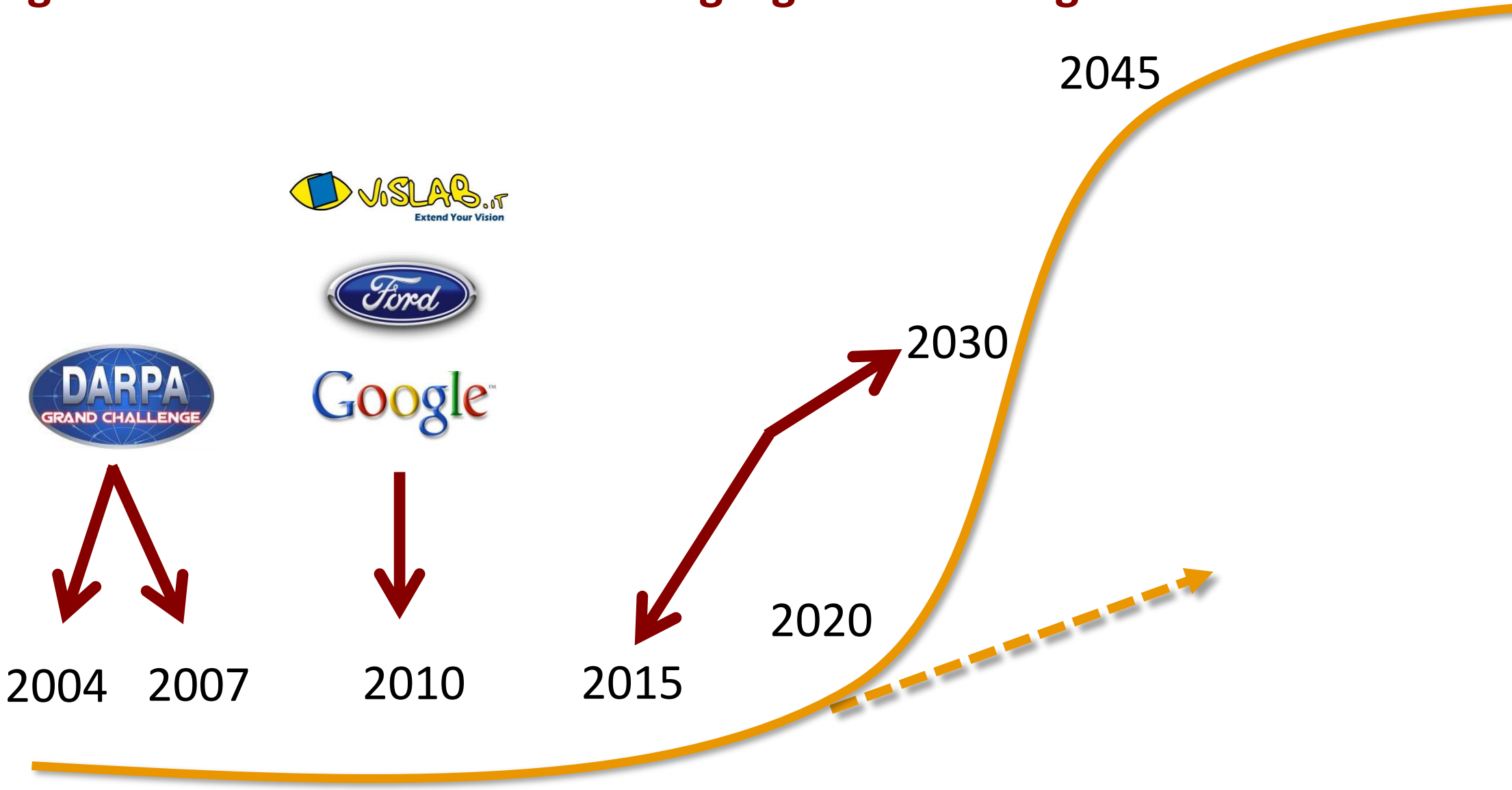
Eras of Mobility



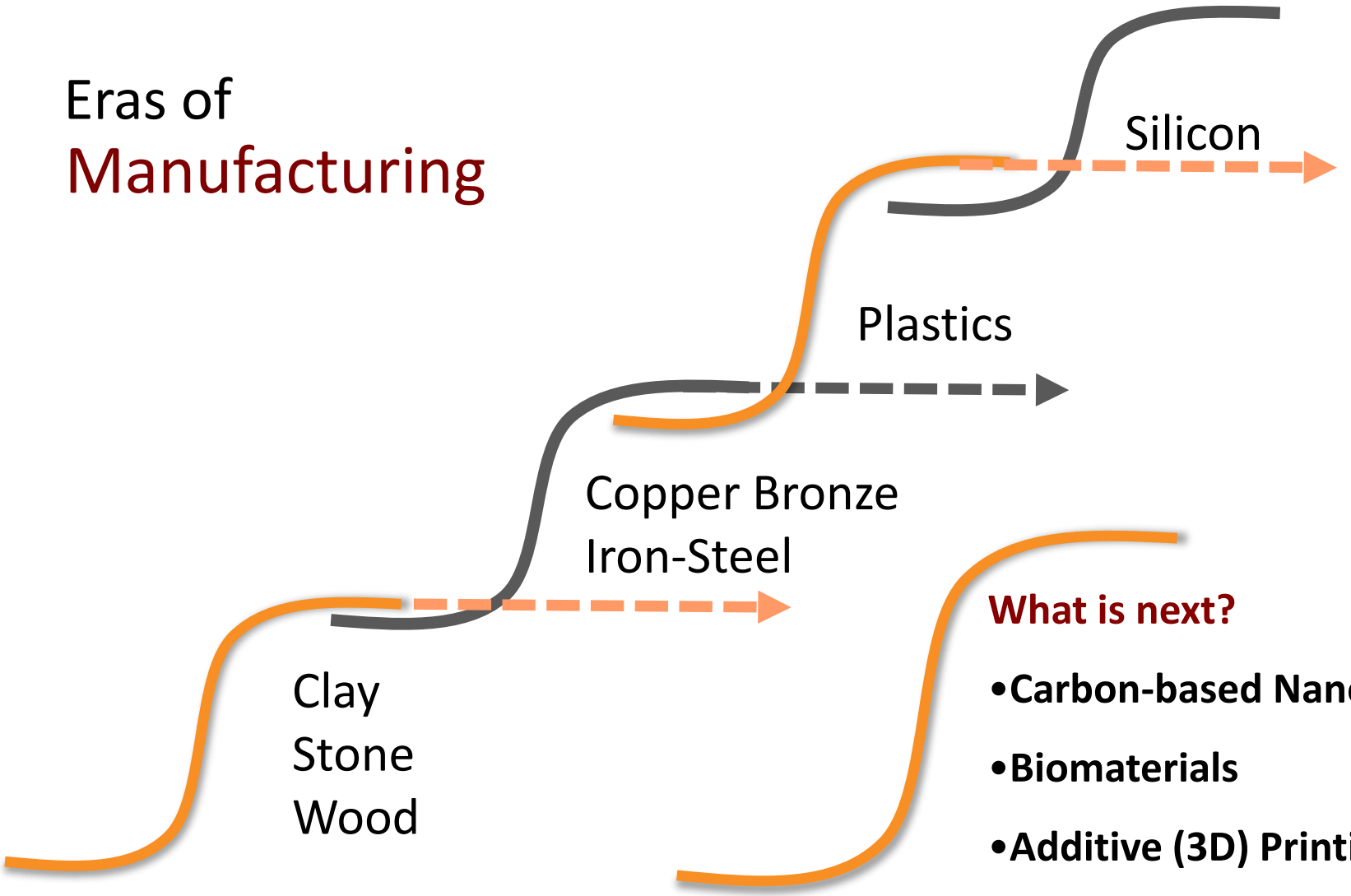
What is next?

- ❑ Electric Vehicles (Battery + Fuel cell)
- ❑ Assistive + Autonomous
- ❑ Low-Volume Production
- ❑ Sub-orbital Space

Tapping Your Inner Futurist: Monitoring Signals of Change

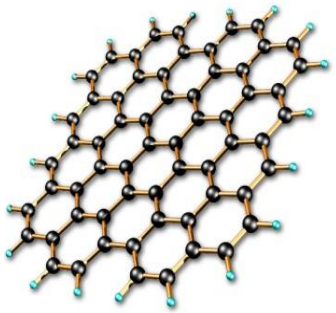


Eras of Manufacturing



What is next?

- **Carbon-based Nanoscale Materials**
- **Biomaterials**
- **Additive (3D) Printing (Minor Era)**



Characterization:
Passive Nanostructures

1990 2009

Functionalization:
Passive Nanostructures

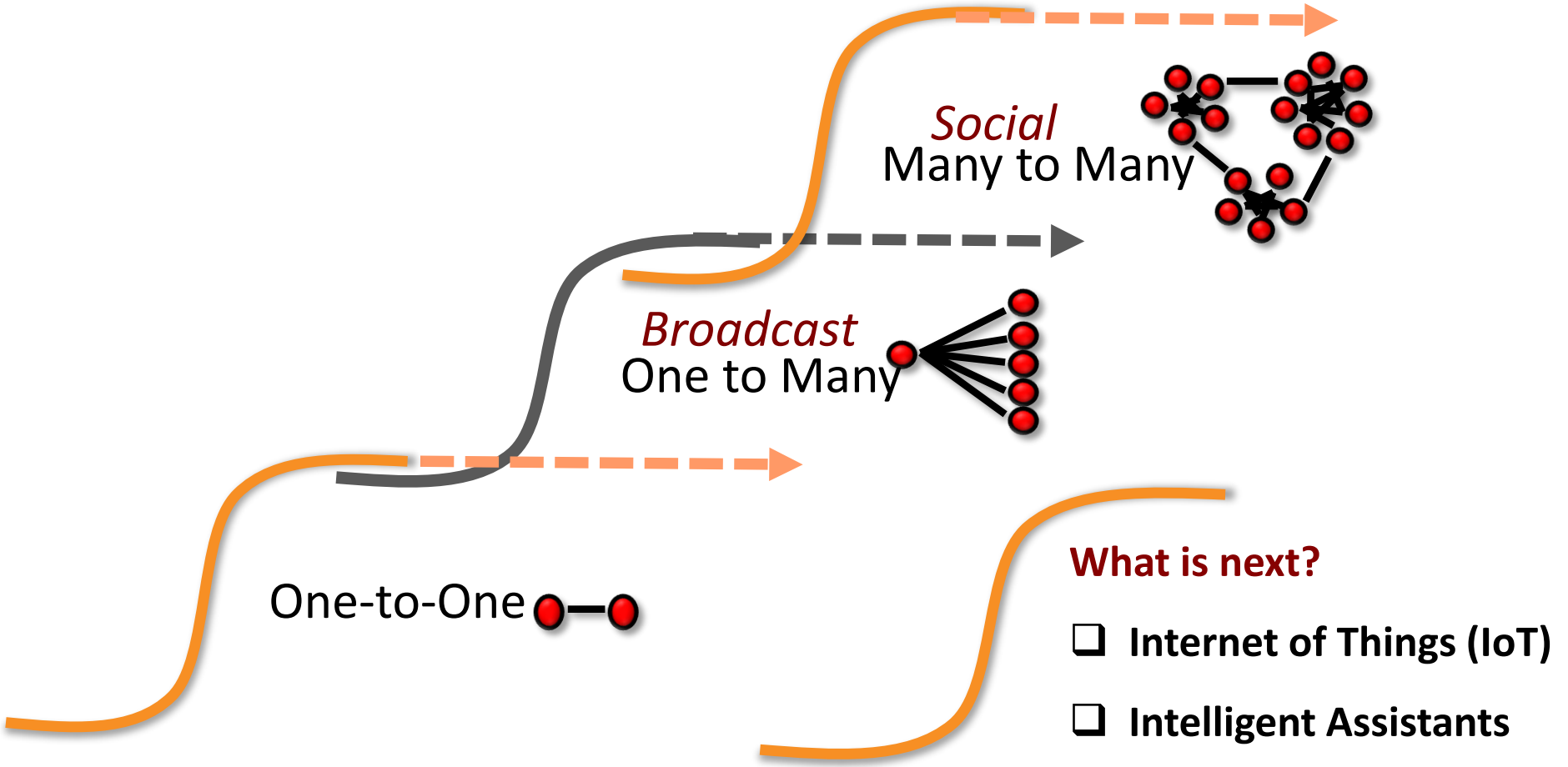
2010 2025

Functionalization:
Active Nanostructures

2030 2050

Eras of

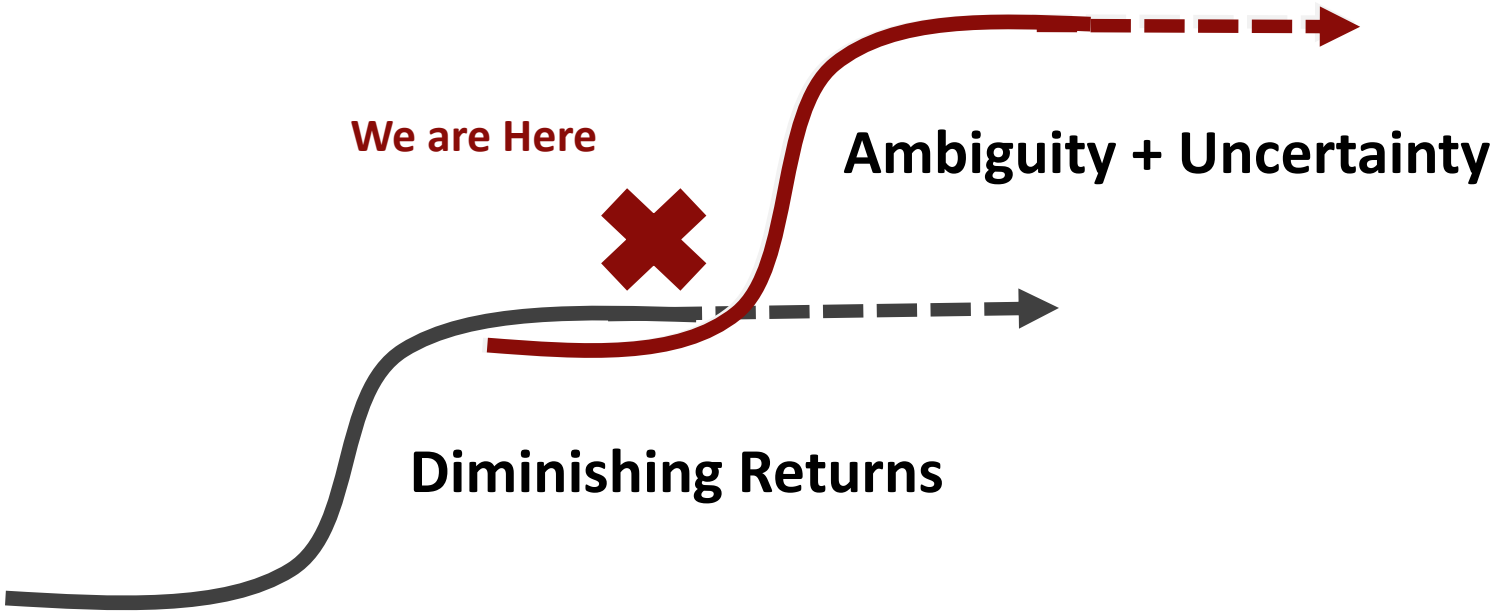
Media/Communication



What is next?

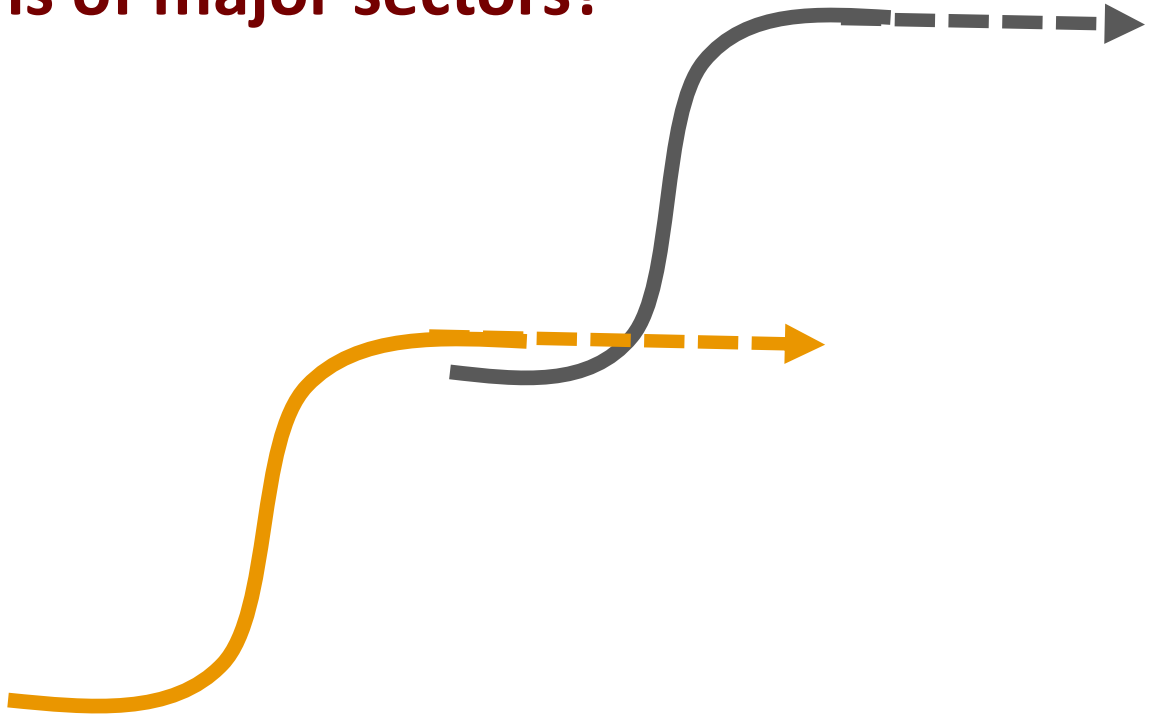
- ❑ **Internet of Things (IoT)**
- ❑ **Intelligent Assistants**

Foresight Focuses on Uncertainties with Era-driven Social Change + Market Transitions



How will societies navigate transitions of major sectors?

- ❑ Transportation/Mobility
- ❑ Healthcare / Wellness
- ❑ Agriculture / Farming / Food
- ❑ Retail
- ❑ Media / Communication
- ❑ Education / Learning

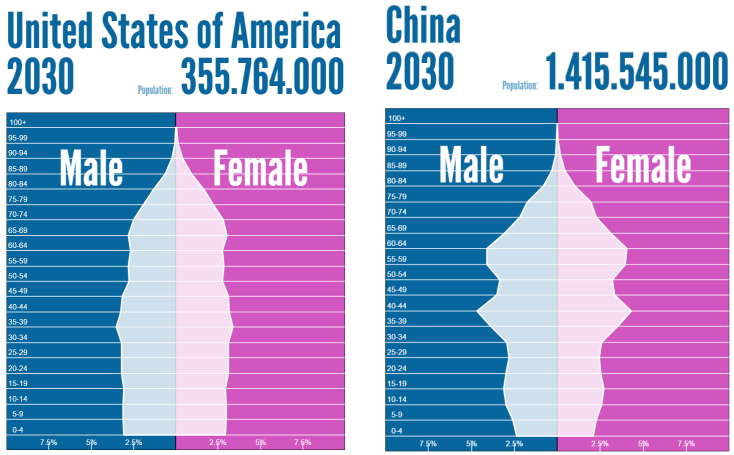


End

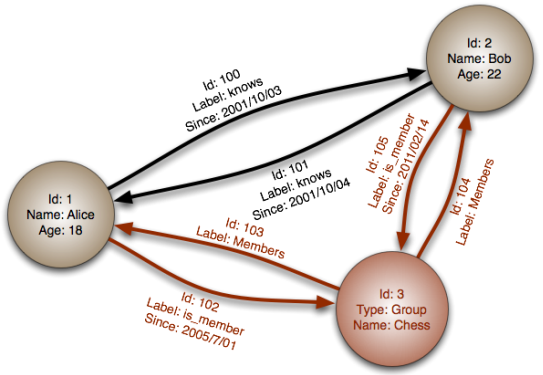
Drivers of Change

Discussion

Global Drivers of Change 2018 – 2030



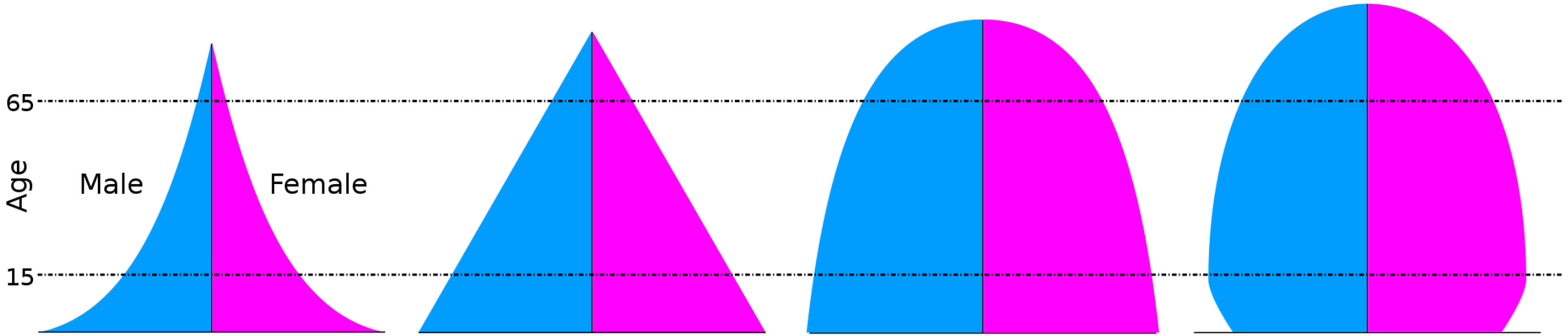
Demographic Destinies



AI-Driven Workplace
Era of Experience Graph

Blockchain &
Smart Contracts

Globalization Reshaped by Demographic Transitions



Stage 1 - expanding

(e.g. Nigeria, Angola)

Stage 2 - expanding

(e.g. India, Pakistan, Indonesia)

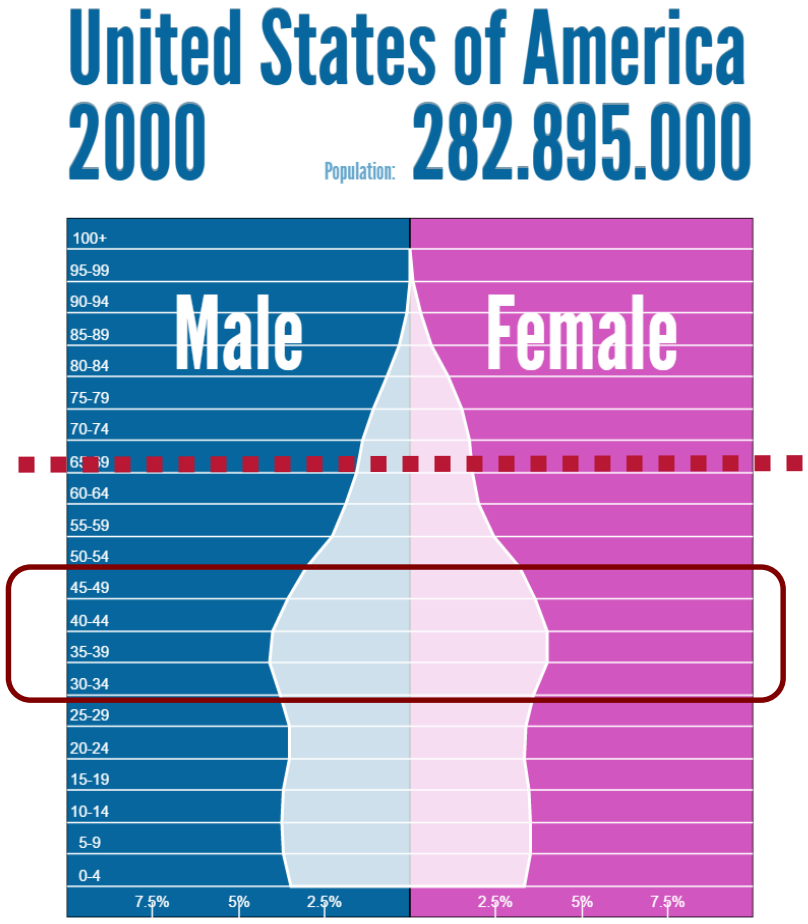
Stage 3 - stationary

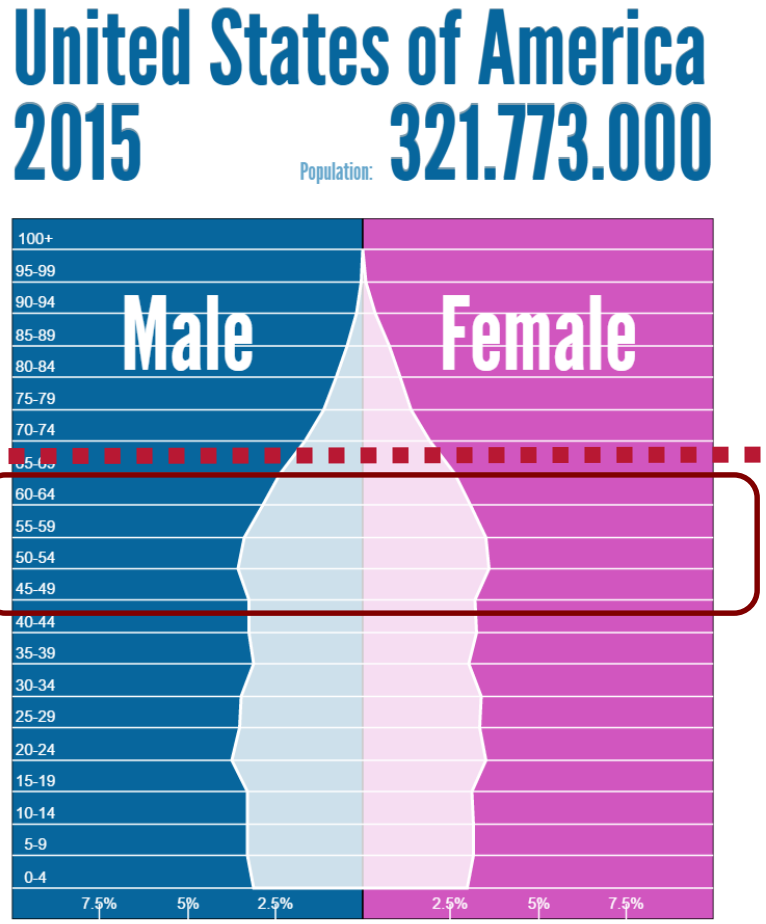
(e.g. U.S., Canada)

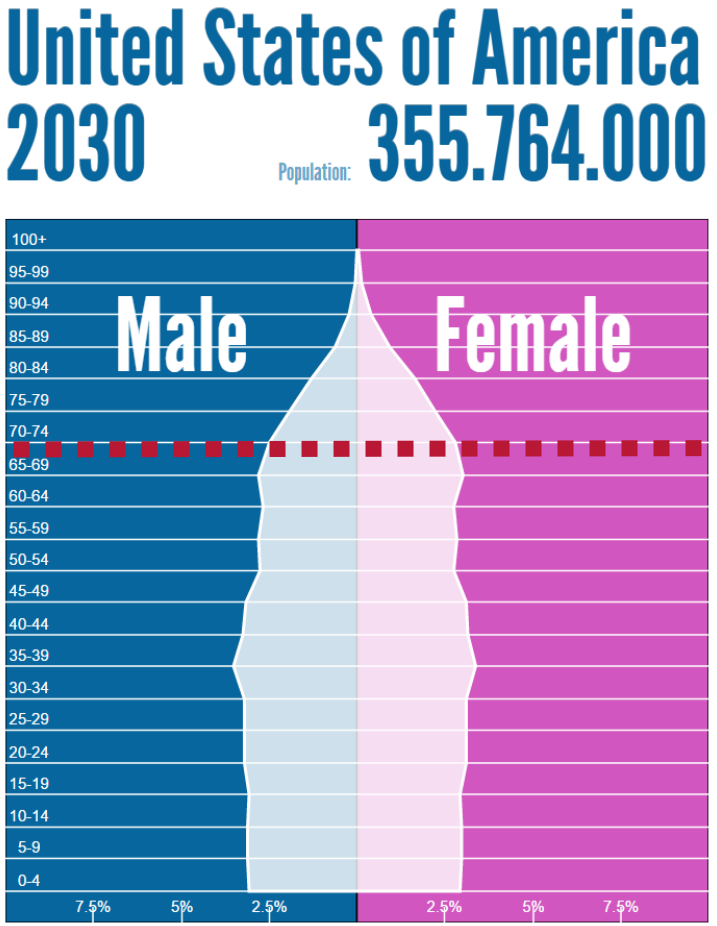
Stage 4 - contracting

(e.g. Italy, Russia, Japan, China)

U.S. = Aging Boomers + Fading *Demographic Dividend*

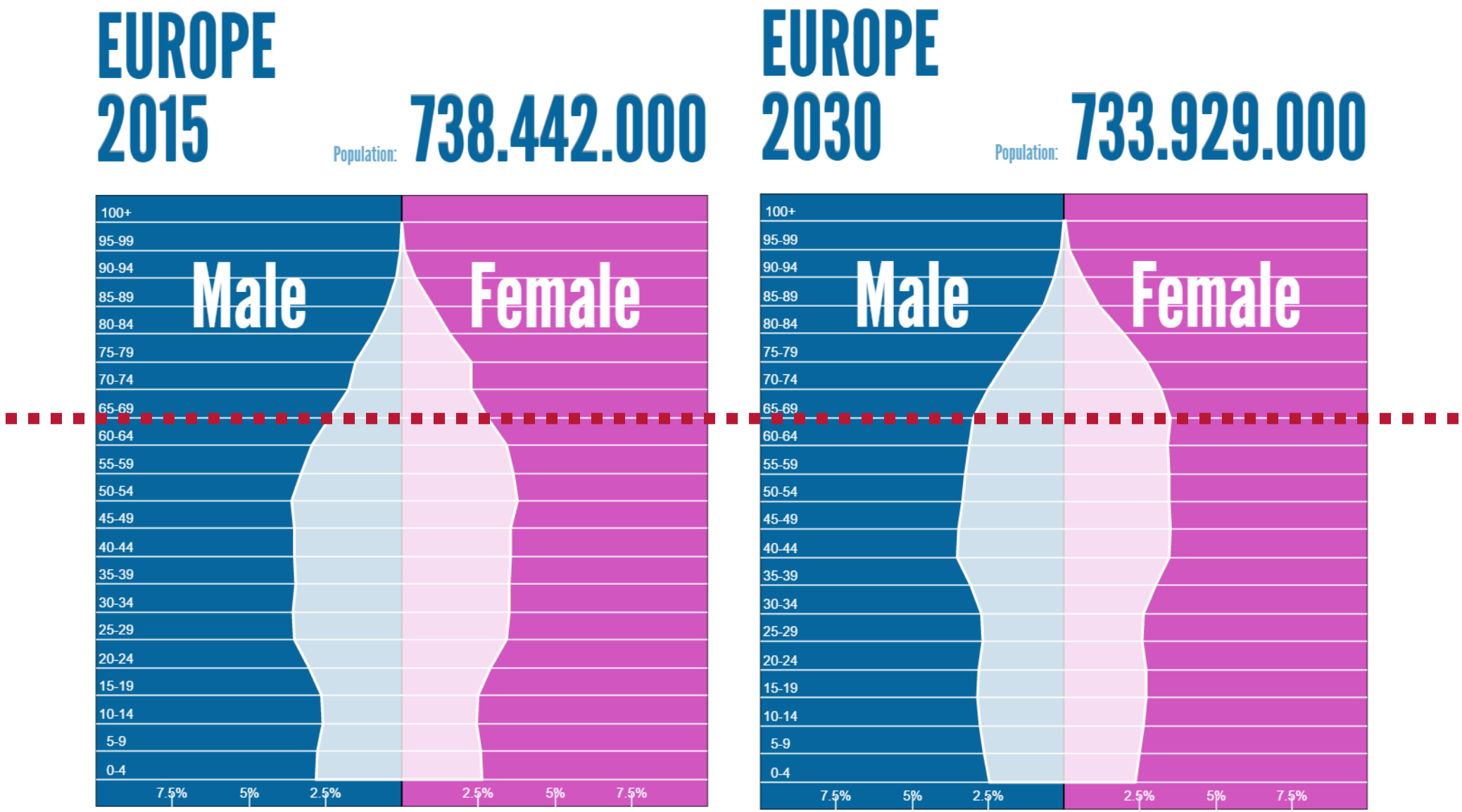






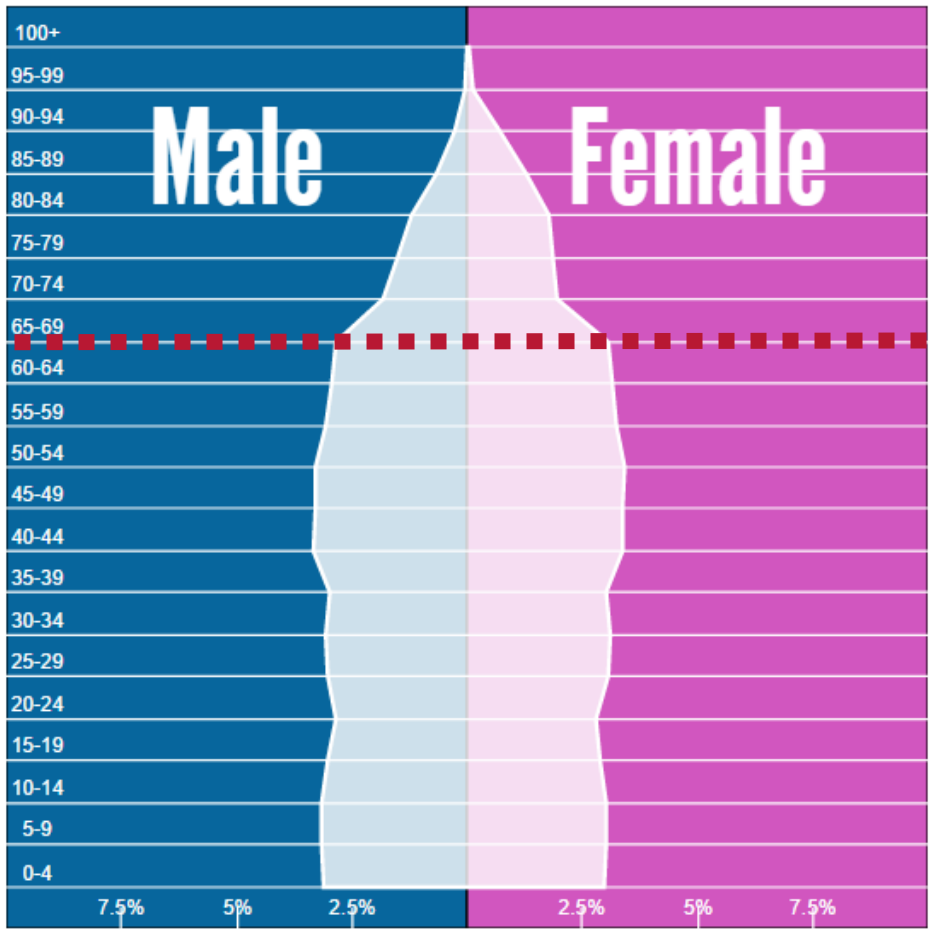
Source: populationpyramid.net

Europe's Pyramid Challenges



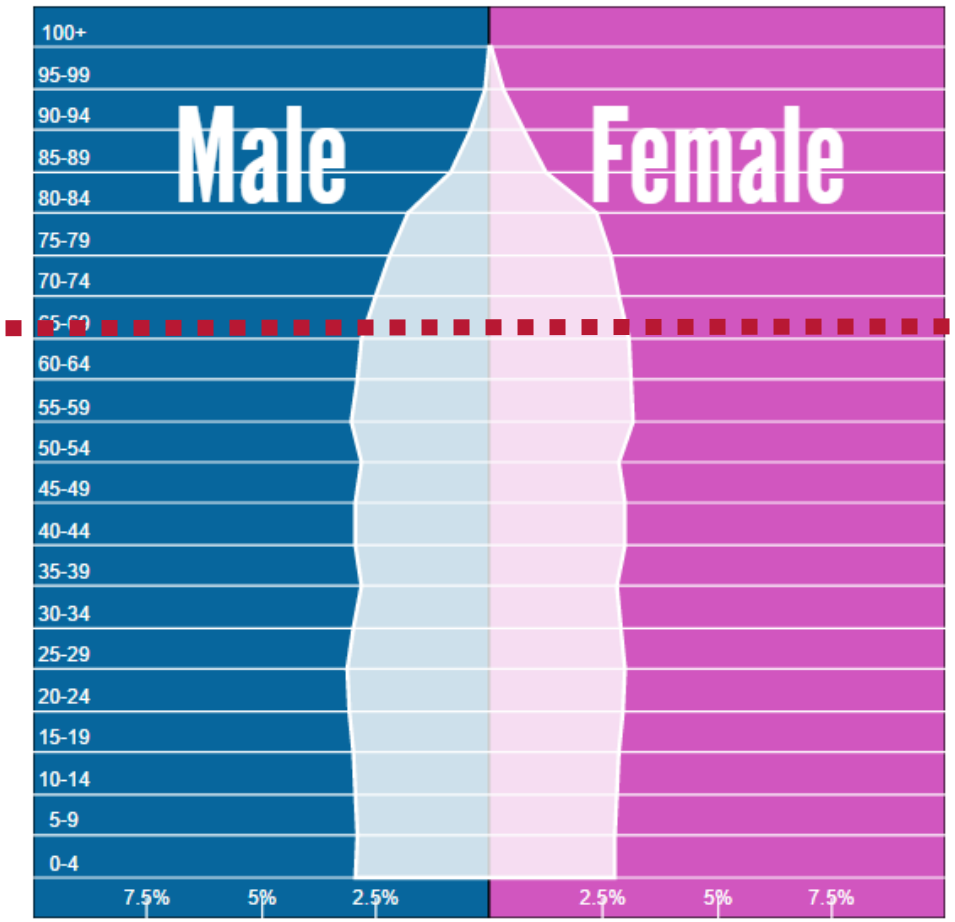
France 2015

Population: 64.395.000



France 2030

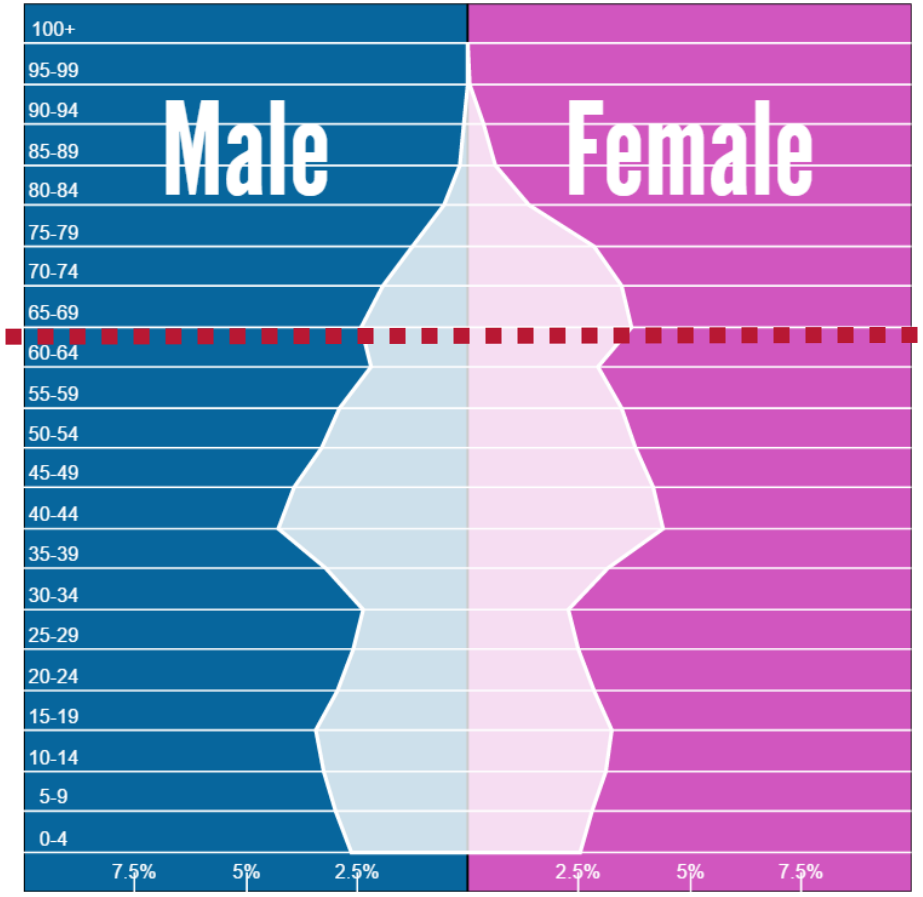
Population: 68.007.000



Global Challenges: Aging Electorates inside Regional Powers

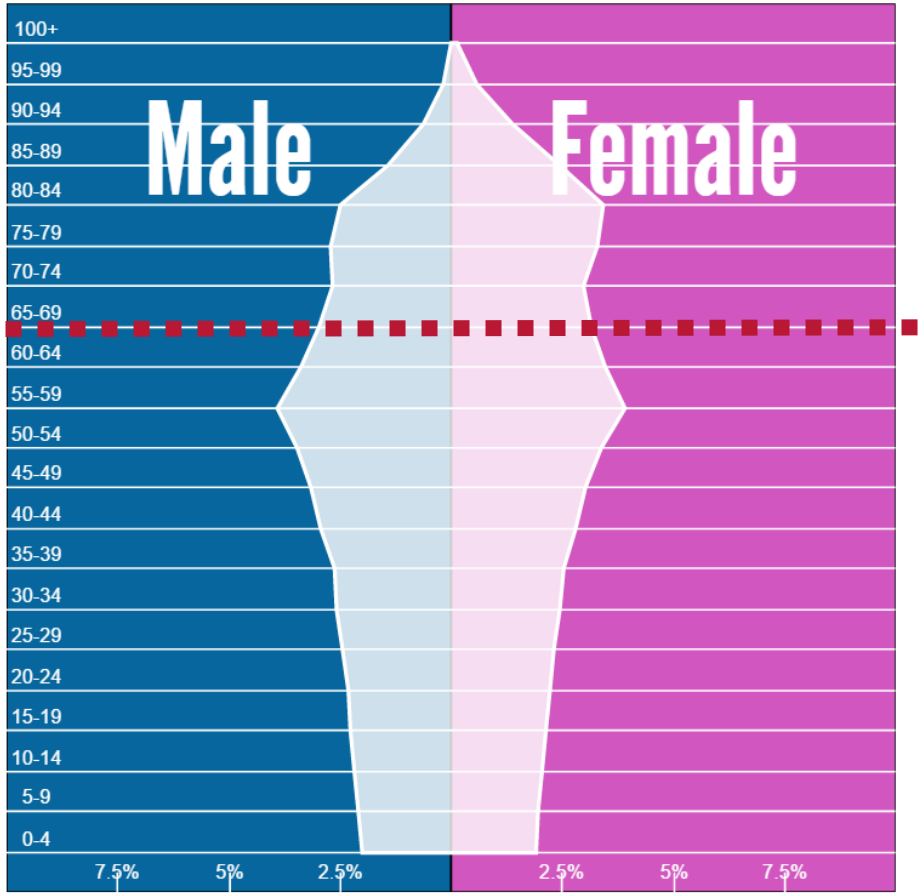
Russian Federation
2030

Population: 138.652.000

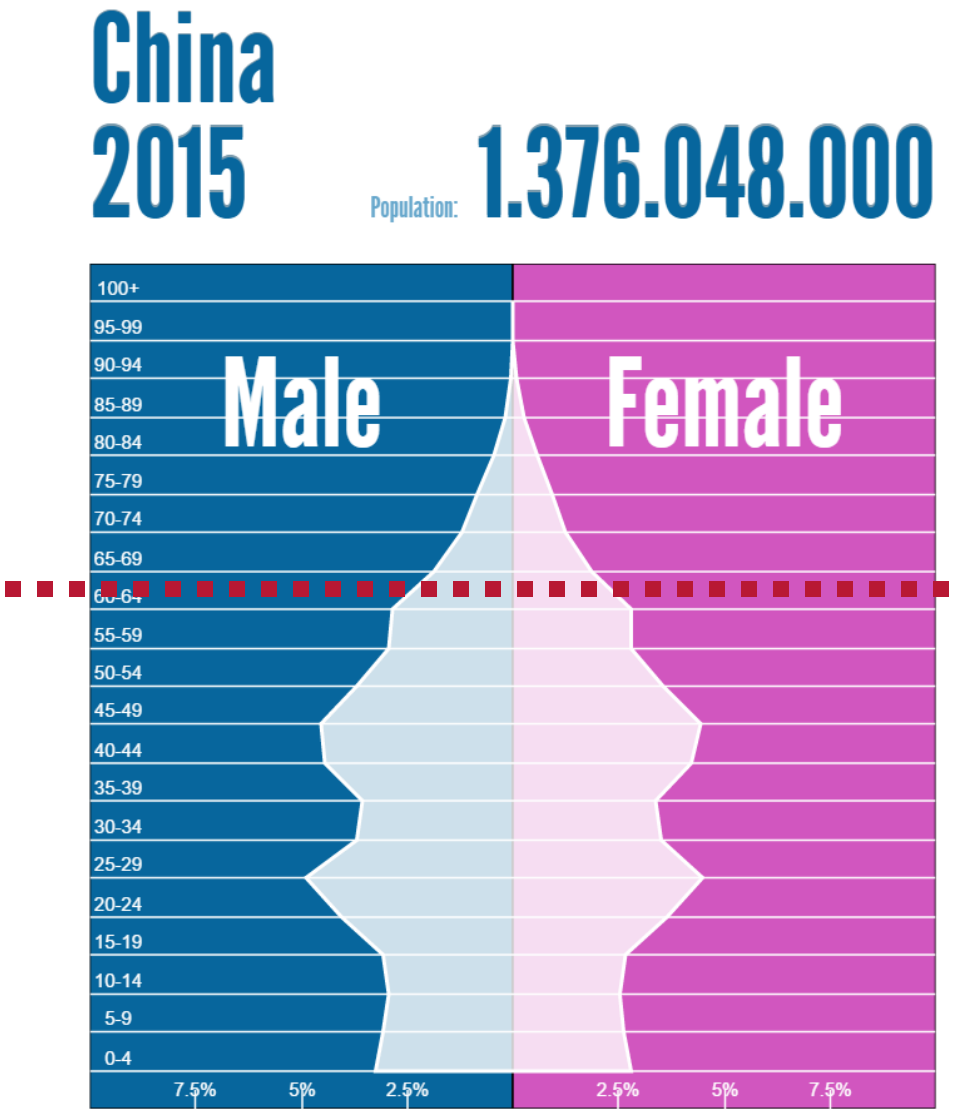


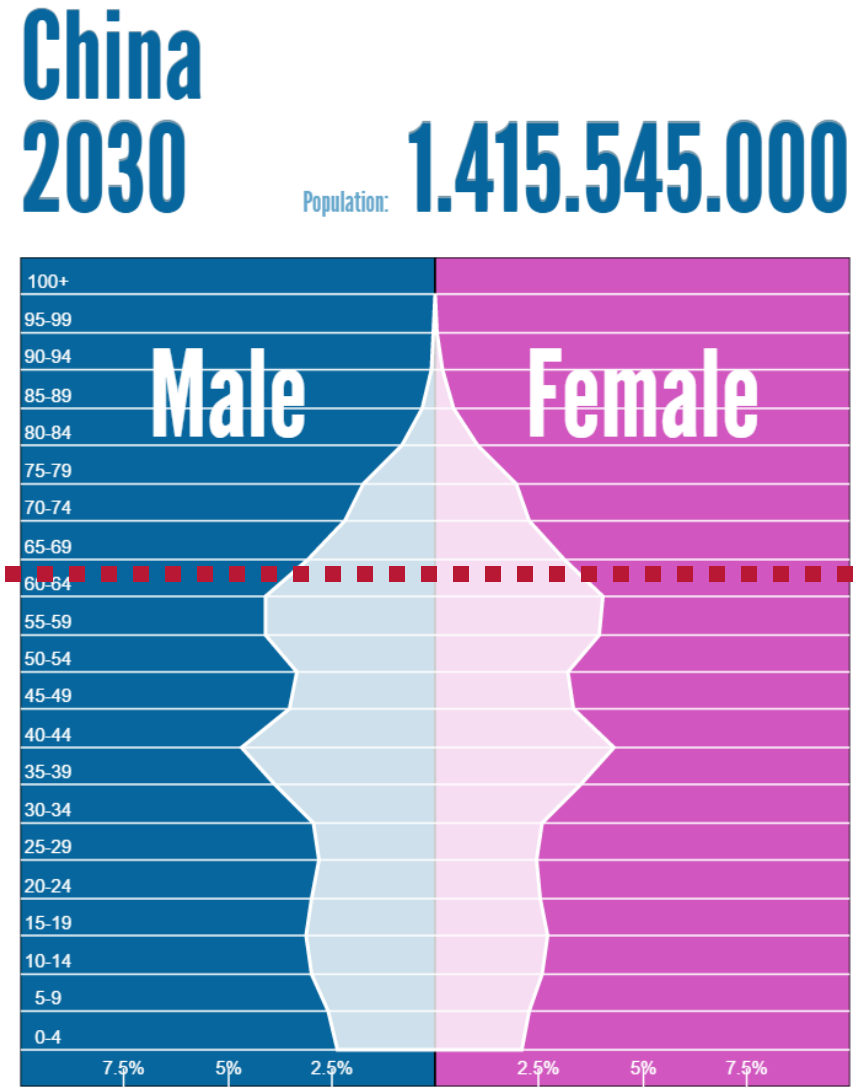
Japan
2030

Population: 120.127.000



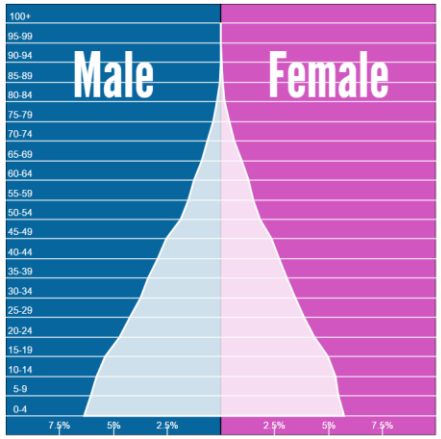
China Not Likely to *Get Rich Before It Gets Old*



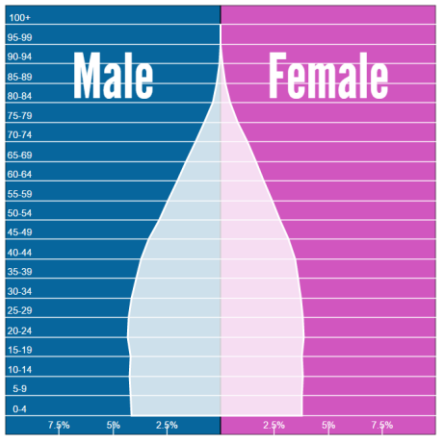


Investing in Global *Demographic Dividends*

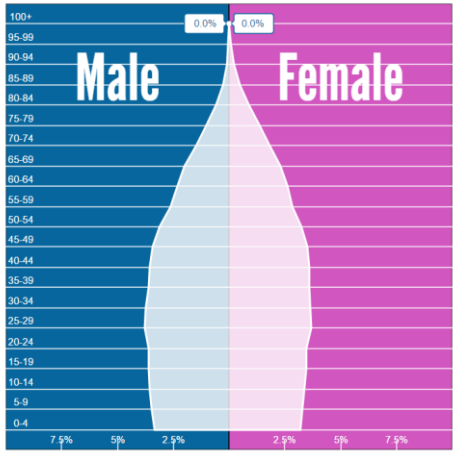
India
2000
Population: 1.053.481.000



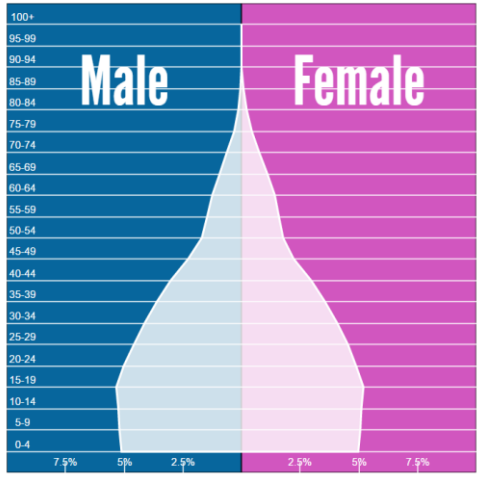
India
2030
Population: 1.527.657.000



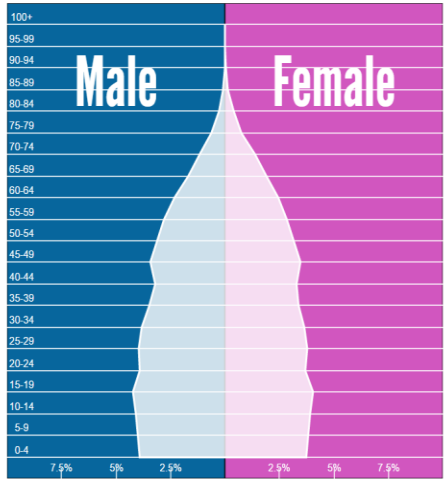
South America
2030
Population: 470.965.000



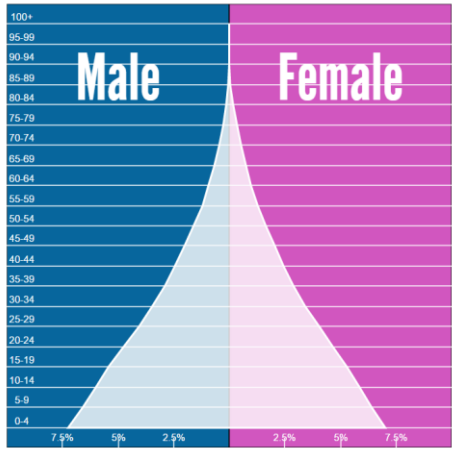
Indonesia
2000
Population: 211.540.000



Indonesia
2030
Population: 295.481.000



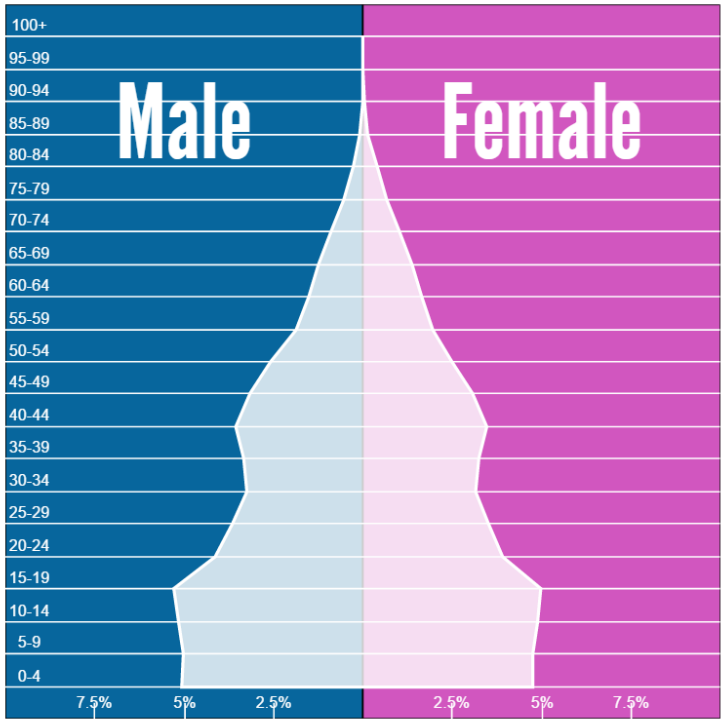
Sub-Saharan Africa
2030
Population: 1.396.853.000



Investing in Global *Demographic Dividends* – MENA

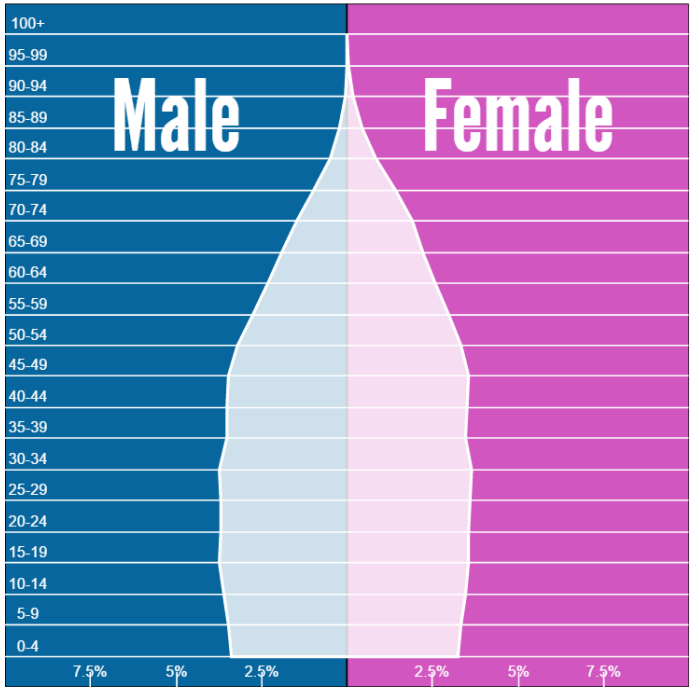
Egypt 2030

Population: 117.101.000



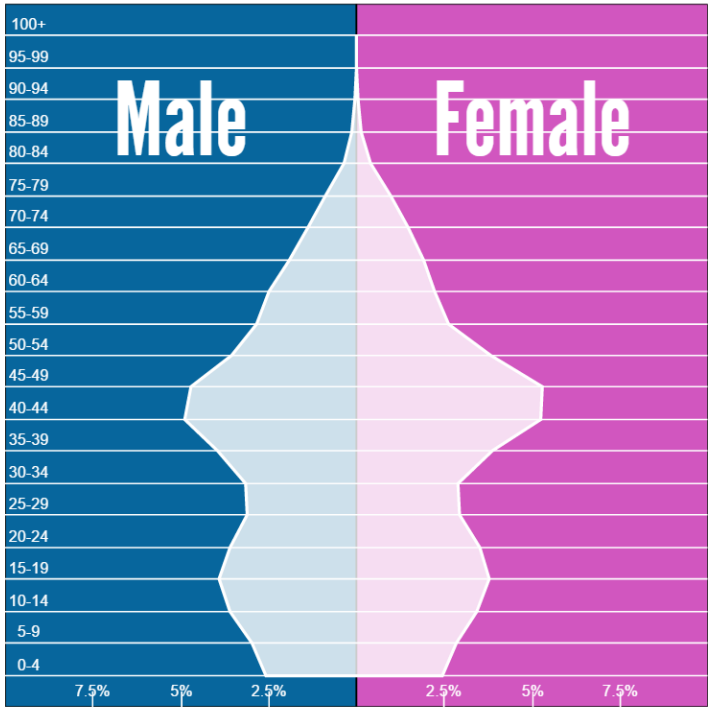
Turkey 2030

Population: 87.716.000



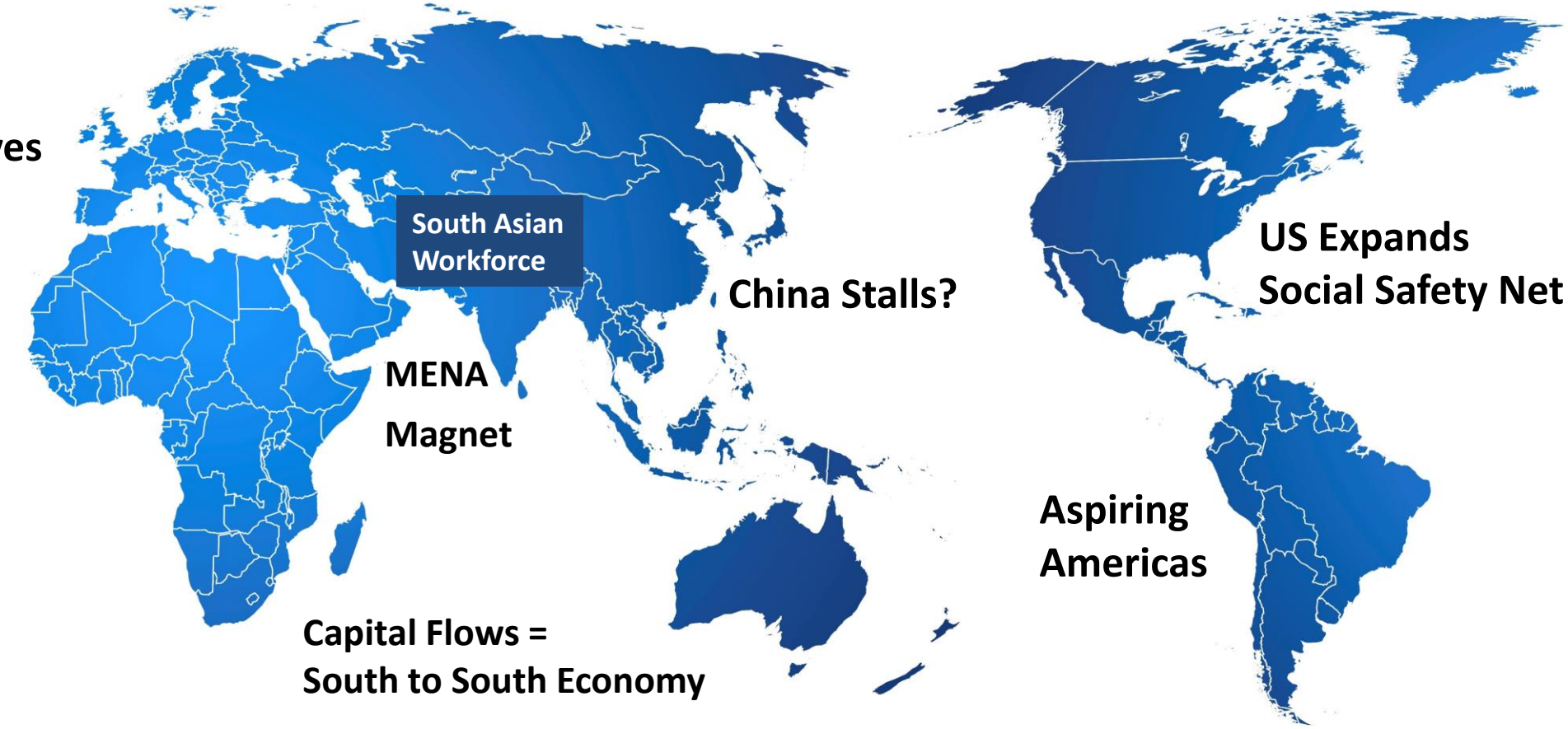
Iran (Islamic Republic of) 2030

Population: 88.528.000



Consider Tipping Points Ahead for Global Events

Aging Populations + Hope for Demographic Dividends Reshaping Global



Implications of Demographic Realities: Biggest Opportunity? Biggest Risk?

Learn More

Connect the Dots

- ❑ **Demographic Transition Model Concepts**
  (+market formation; +technology adoption)

- ❑ **Garry's Diigo Tags**
  diigo.com/user/garrygolden/aging
  diigo.com/user/garrygolden/demographics

- ❑ **Spiral Dynamics Integral (SDi)**
  Bio-Psycho-Social Development Model

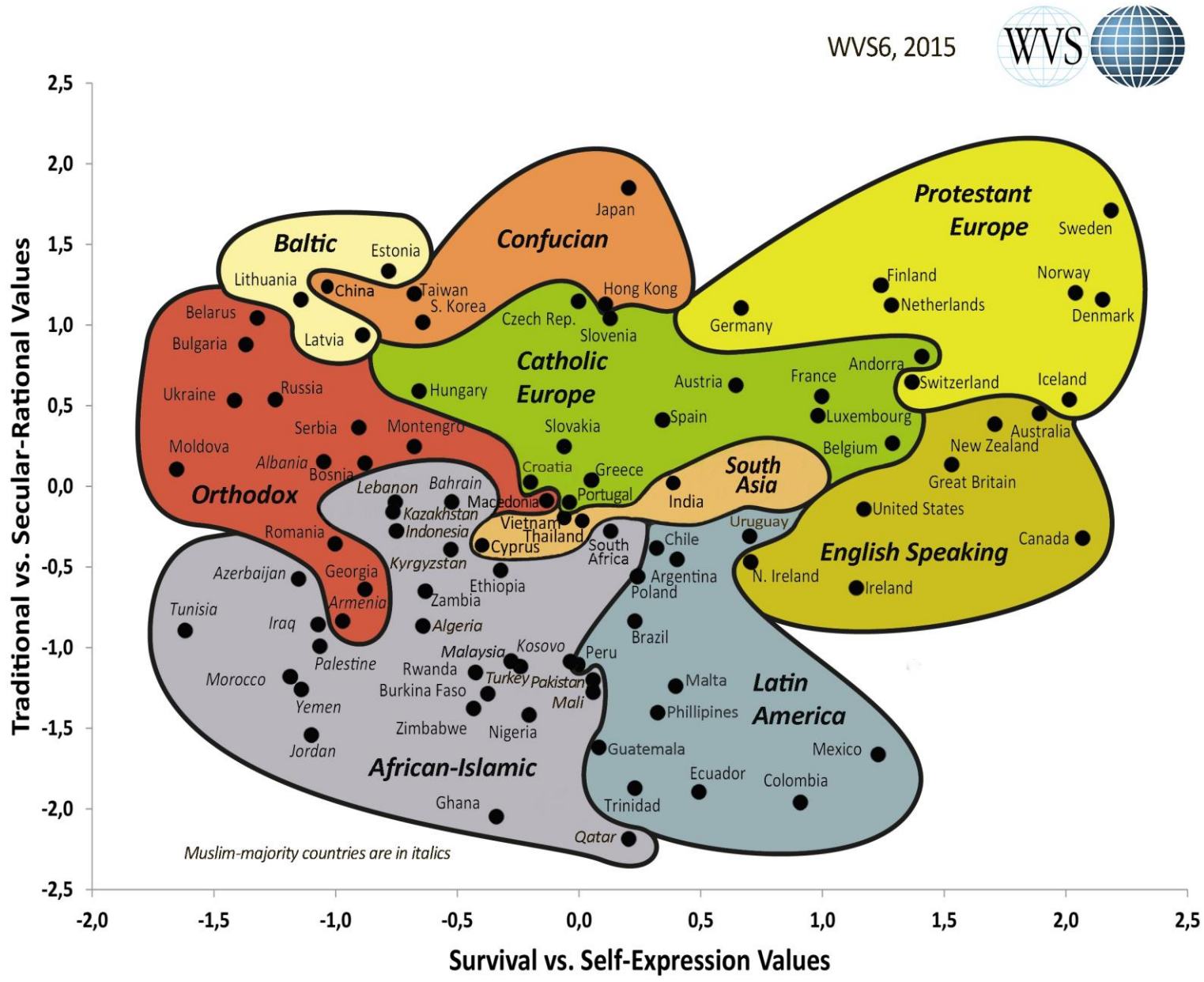
- ❑ **World Values Survey (University of Michigan)**

Demographic Meets Values Systems

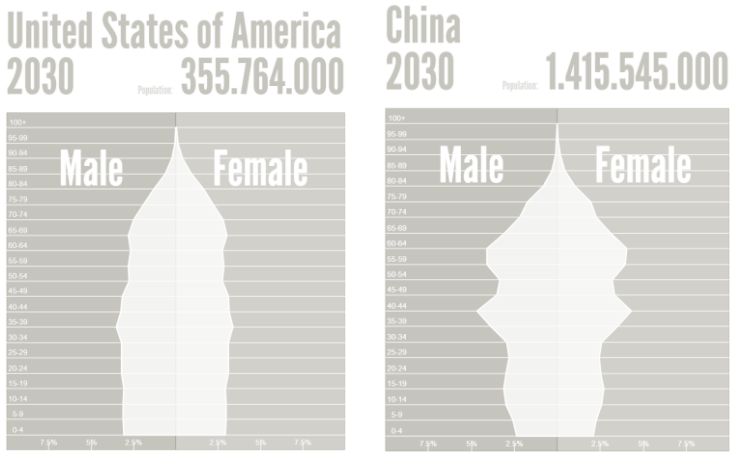
Inglehart–Welzel Cultural Map

Foresight + Designing Thinking

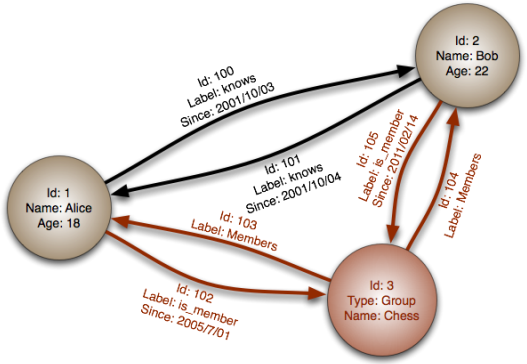
Bing and Cognitive Solution Experiences for Social Norms + Cultural Interpretations



Global Drivers of Change 2018 – 2030



Demographic Destinies



AI-Driven Workplace
Era of Experience Graph

Blockchain & Smart Contracts

In the News

Estonia is piloting a program with **Experience.ai** to capture workplace workflows and decision processes. The country's vision is for every worker to retain rights to workflow data and build a critical personal digital asset for the future.

True

False

Context of the *Creepy Line*

Google

Inevitability of Dealing with the *Creepy vs Compelling Line around the...*

Future of Work

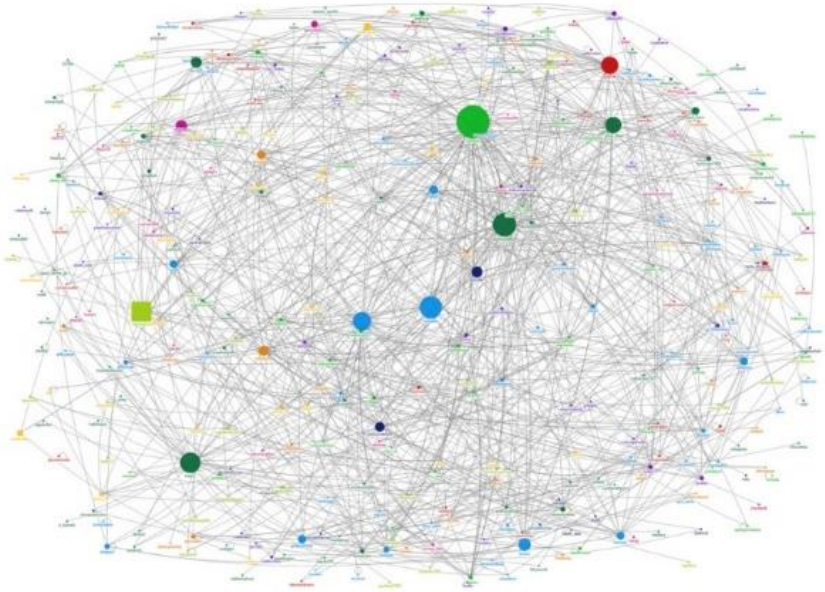
Dynamics of our Social Graphs

facebook

Pinterest LinkedIn

match.com

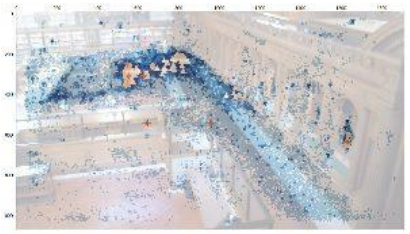
Dynamics of our Experience Graphs



Data as New Oil … Data as the New Soil

Social Data

Health Data



Device + Place Data

EXPERIENCE API

"I did this…"

Learning & Work Experience Data

First Signal of Experience Analytics

Activity Streams

<Actor, Verb, Object>

“I did this”

Why xAPI?
Understand the Link Between Training, Performance & Outcomes

Course

Outputs

EXPERIENCE API

“I did this…”

Statements

Seamless Integrated into
Software & Connected Devices

Real World

Outcomes

Scenario:
Professional Staff Embrace Experience Capture Analytics

- ❑ 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 Seniors
- ❑ 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 **won** an Webbie award for Social VR platform
- ❑ Lucy ***taught*** a Coursera MOOC on Universal Design and VR experiences
- ❑ Lucy **was hired** as head of Social VR for Aging Populations at Facebook

EXPERIENCE API

"I did this…" Analytics

Assumption to Explore

By 2025, Experience Data Will Become Your & Enterprise's Most Valuable Digital Asset

If we capture experience data…

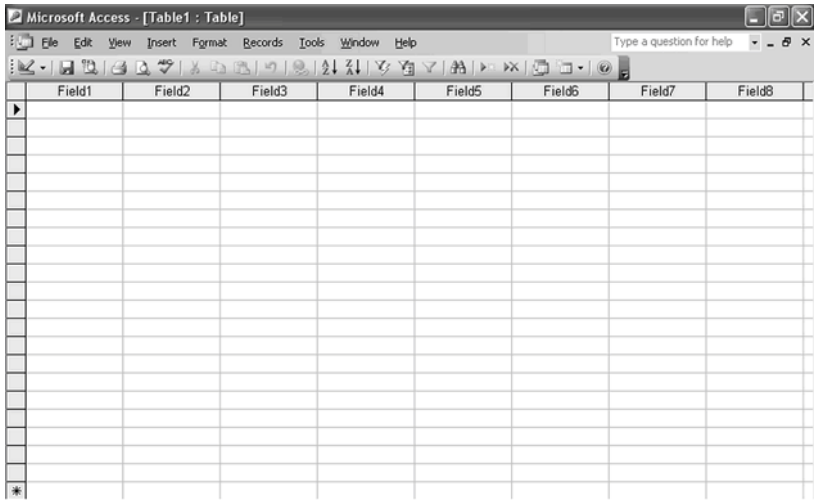
"I did this…"
Statements

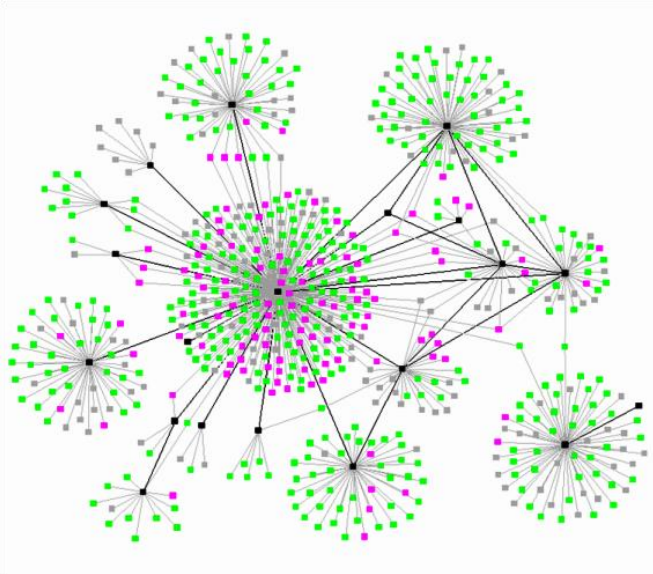
How do we approach regulations?

How do we avoid the creepy line?

How do we make sense of it?

Building a Connected Data Foundation for Outcomes-focused Performance Support



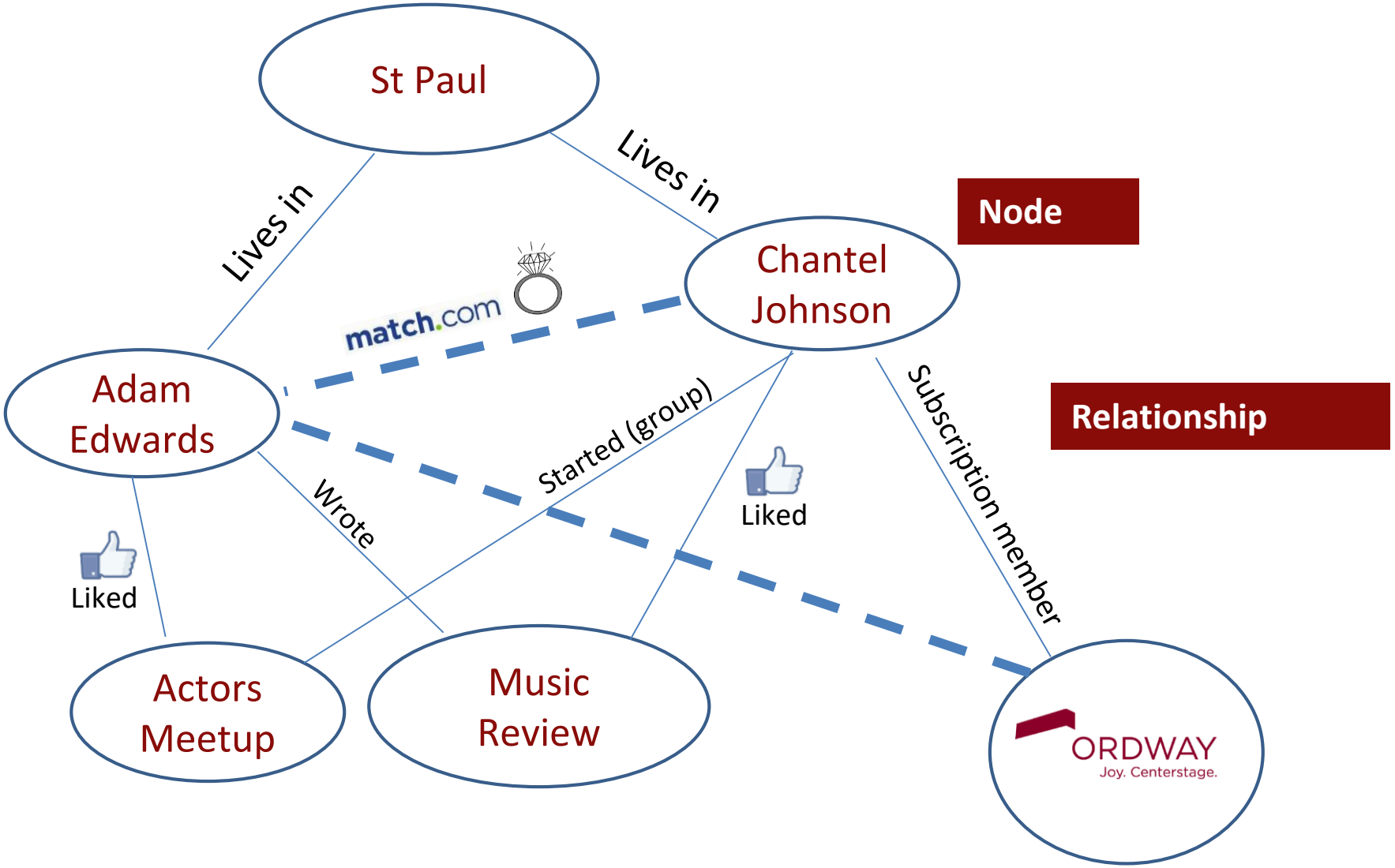


Tables = Past

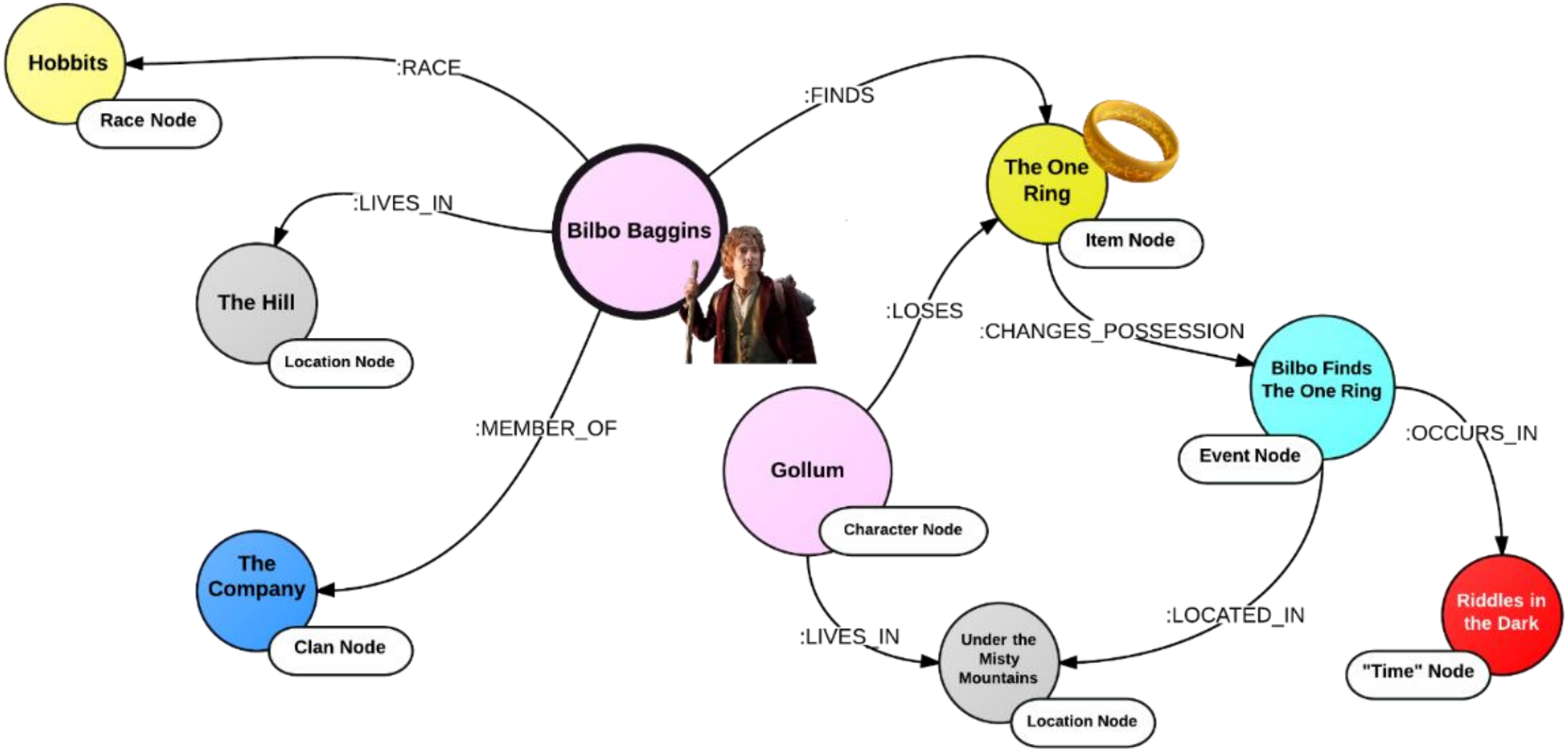
Graph Thinking = Future

neo4j

Graph Database =
Understanding Relationships + Connections

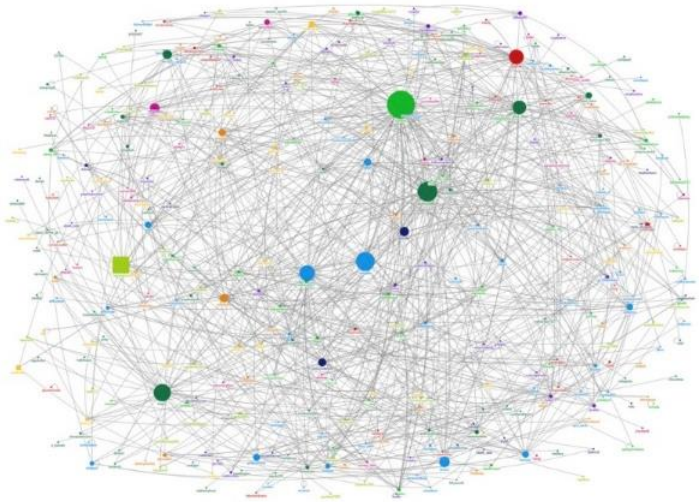


Graph Thinking to Understand Pathways & Outcomes



Assumption:
Graph Analytics Transform Society & Business

Dynamics of our
Social Graphs

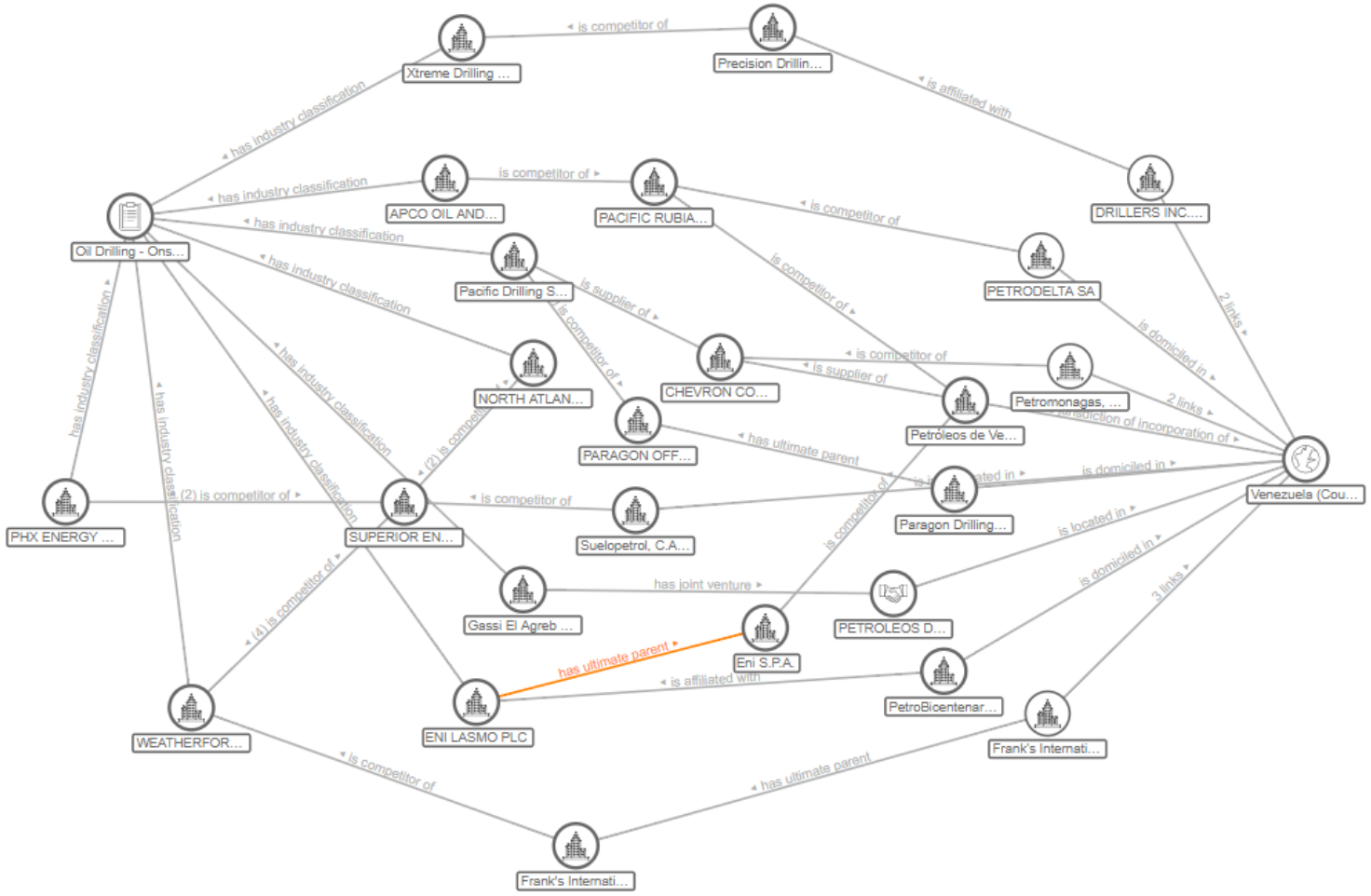


Dynamics of our
Experience Graphs

Today: Enterprise Knowledge Graphs

the answer company
THOMSON REUTERS

A linked data feed of Thomson Reuters financial content sets with a pre-identified set of relationships, helping you to uncover previously undetected connections within and across data sets.



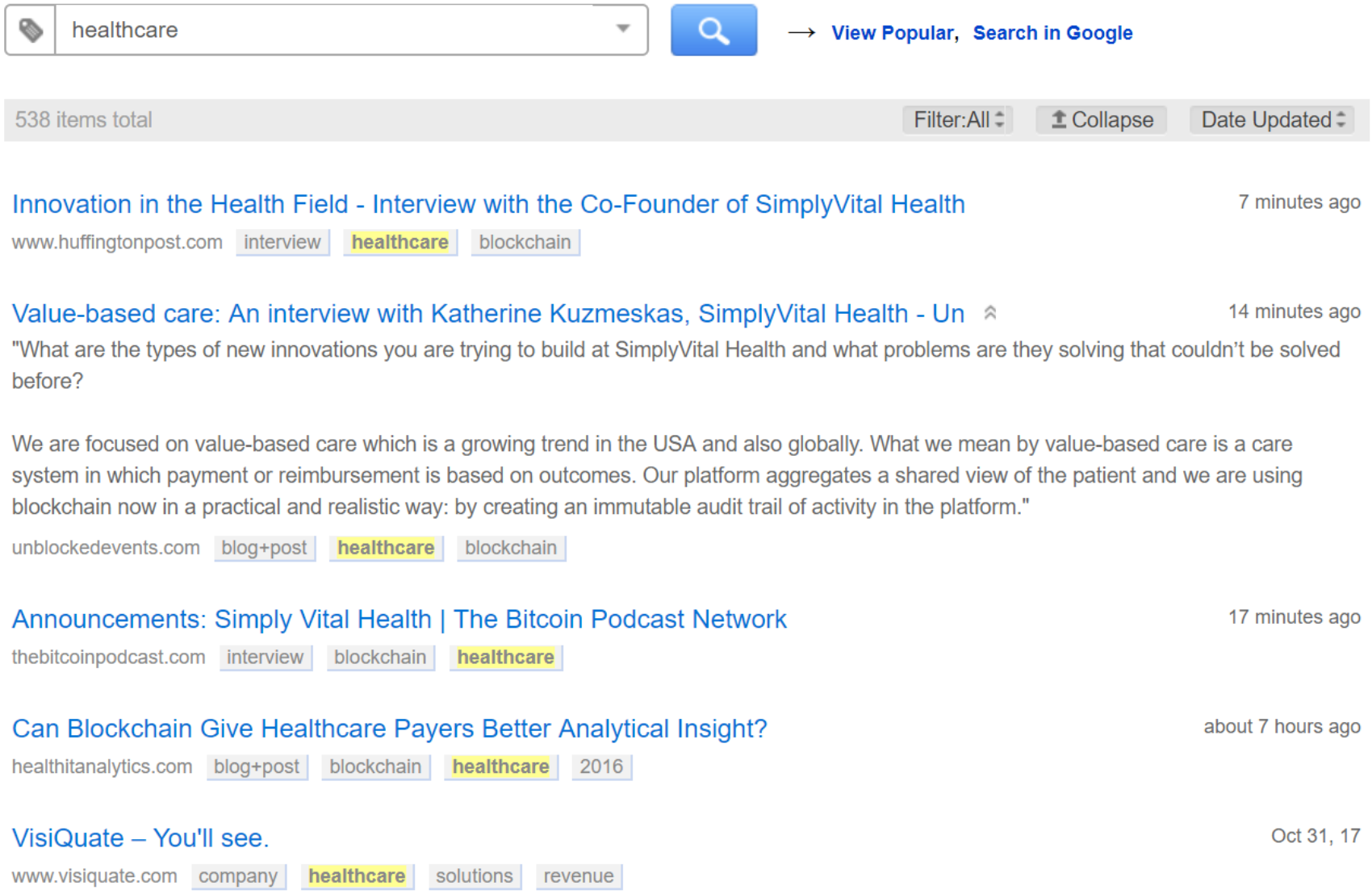
Today: Economic Graphs

Members – Companies – Jobs – Skills – Schools – Knowledge

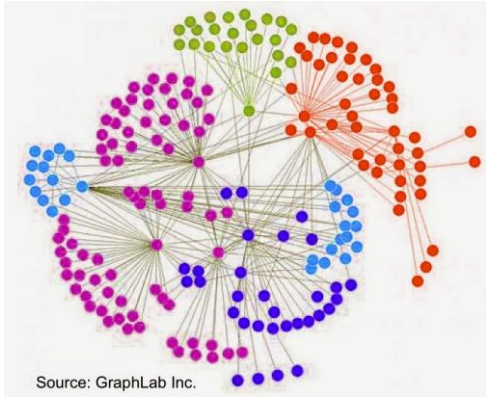
Collect & Share Signals as Social Bookmarks

Scanning Tool

diigo



I love Graph Thinking



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Have you seen our life science workshop proceedings? Perhaps some useful insights.

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Neo4j Blog

Neo4j Life Sciences & Healthcare Workshop – Proceedings from Berlin

Big Data in Genomics: How Neo4j enables personalized therapies

Martin Preusse (Knowing, Helmholtz Zentrum Munich)

Biomedical research generates vast amounts of data. New experimental technologies like DNA sequencing, metabolomics and proteomics drive the fast growth of available information and lead to a better understanding of the molecular organization of life.

Prioritizing SNPs using the Neo4j Galaxy Interactive Environment

Thoba Lose (South African National Bioinformatics Institute)

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Secure | https://neo4j.com/blog/neo4j-life-sciences-healthcare-workshop-berlin/

neo4j PRODUCTS SOLUTIONS PARTNERS CUSTOMERS LEARN

Proceedings from Berlin

(Neo4j Blog)←[:BACK]

By Michael Hunger & Petra Selmer, Neo4j Team | September 29, 2017

Often invisible to the people outside of the field, life science researchers have been quietly embracing graph databases instead of the traditional triple and relational stores.

On June 21, we invited a group of life science and healthcare researchers and practitioners to E to share their experiences in a full-day workshop.

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Neo4j Life Sciences & Healthcare Workshop – Proceedings from Berlin

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a Real-World Dataset in Neo4j: Import and Modelling

Kees Vegter

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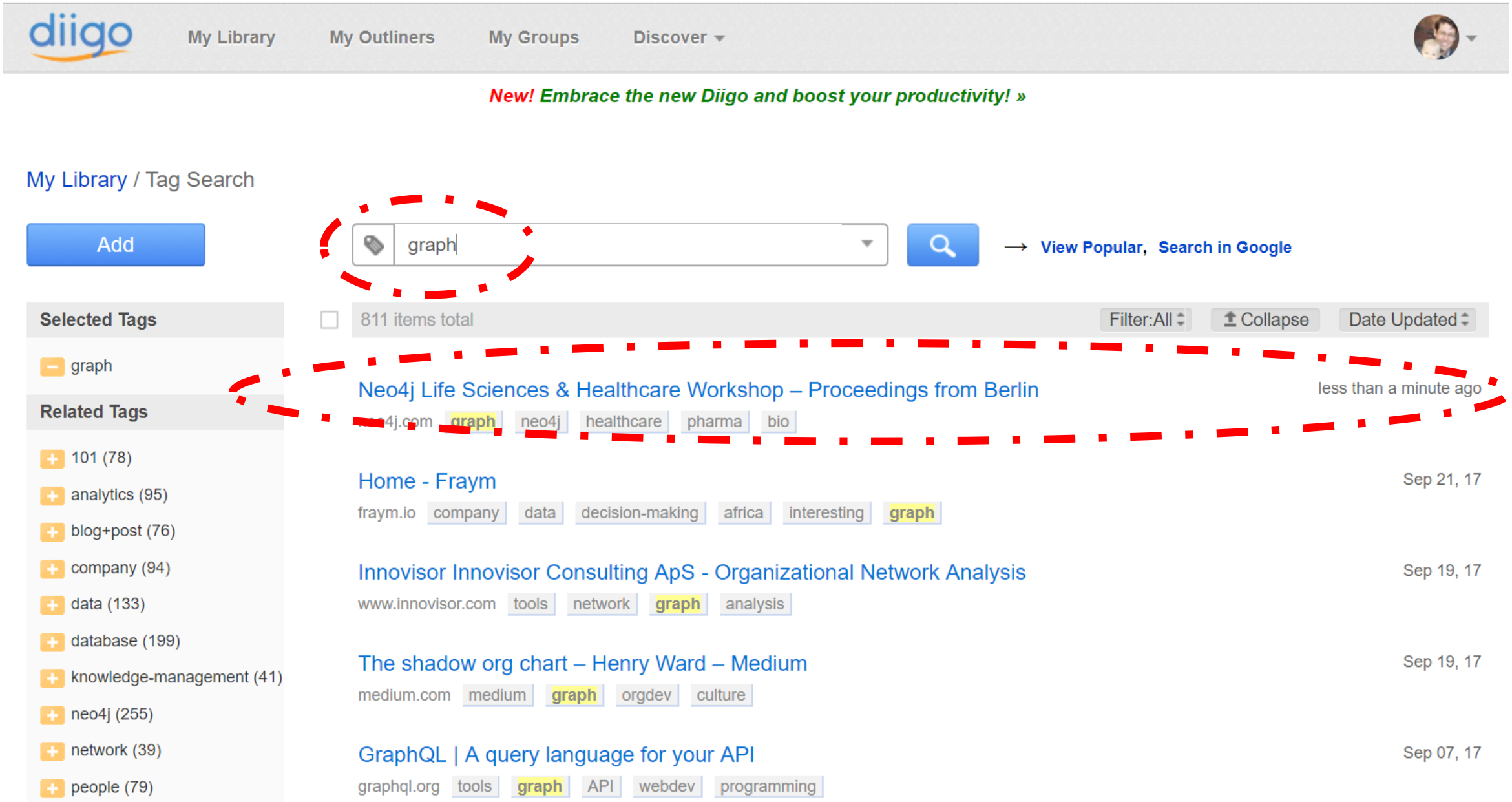
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Garry's diigo Tags (Social Bookmarks) on:

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https://www.diigo.com/user/garrygolden/healthcare

Healthcare+ Data
https://www.diigo.com/user/garrygolden/healthcare%20data

ExperienceAPI(xAPI)
https://www.diigo.com/user/garrygolden/xAPI

Getting Started

Set up a Free Profile at:

diigo

Sign up

www.diigo.com/

You may use your real name (e.g. Garry Golden) or fictional name to protect privacy.

https://www.diigo.com/user/garrygolden/

Install Plug-in / Extension on the web browser you use most often:

Install Extension

The Diigo website should recognize the web browser you are using during set up so it is easy to do. After the extension is installed you are ready to go. When you wish to 'tag' or archive a webpage simply click on the small "D" icon on your browser.

Test it Out!
Try to 'tag' a news story you find via your web browser:

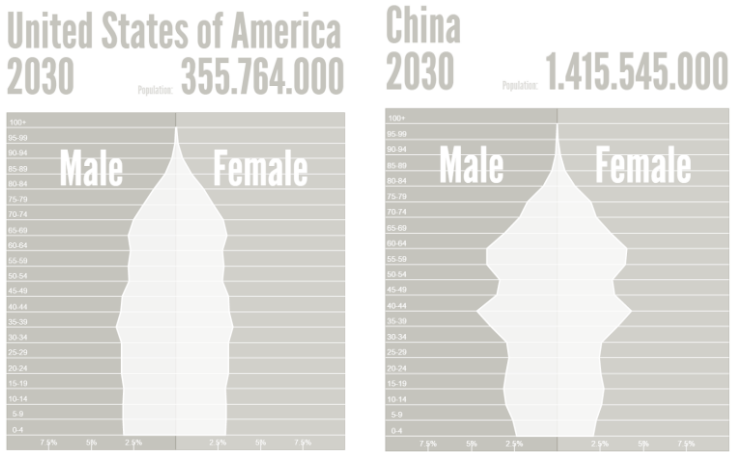
VentureBeat

Chicago's Outcome Health hires Twitter engineering VP, its first big hire after $500 million round

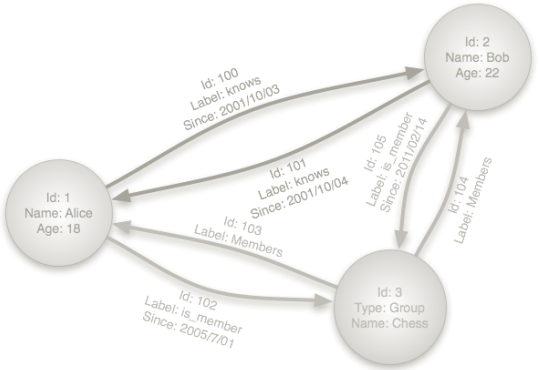
ANNA HENSEL @AHHENSEL AUGUST 28, 2017 10:15 AM

Implications of Living in World of Experience Data : Biggest Opportunity? Biggest Risk?

Global Drivers of Change 2018 – 2030



Demographic Destinies



AI-Driven Workplace
Era of Experience Graph

Blockchain & Smart Contracts

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

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

Remember, It Was Hard to Explain the Internet in 1994

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?'

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

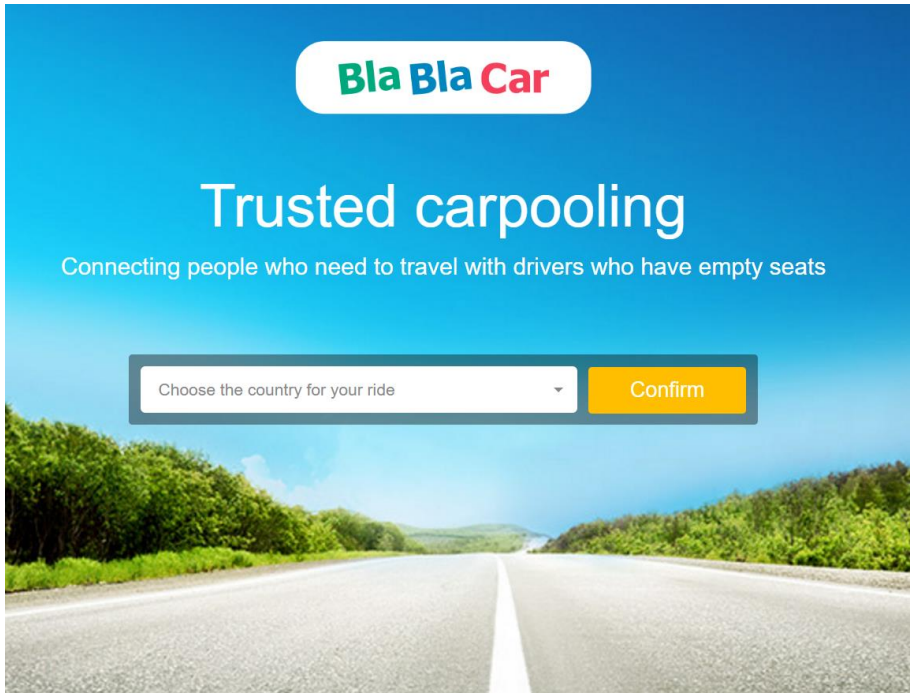
Evolution of the Web: Trust for Transactions

Internet of Files (Websites)

Internet of Social Networks

Internet of Transactions

Rethinking ‘Trust’ & Role of Third Parties



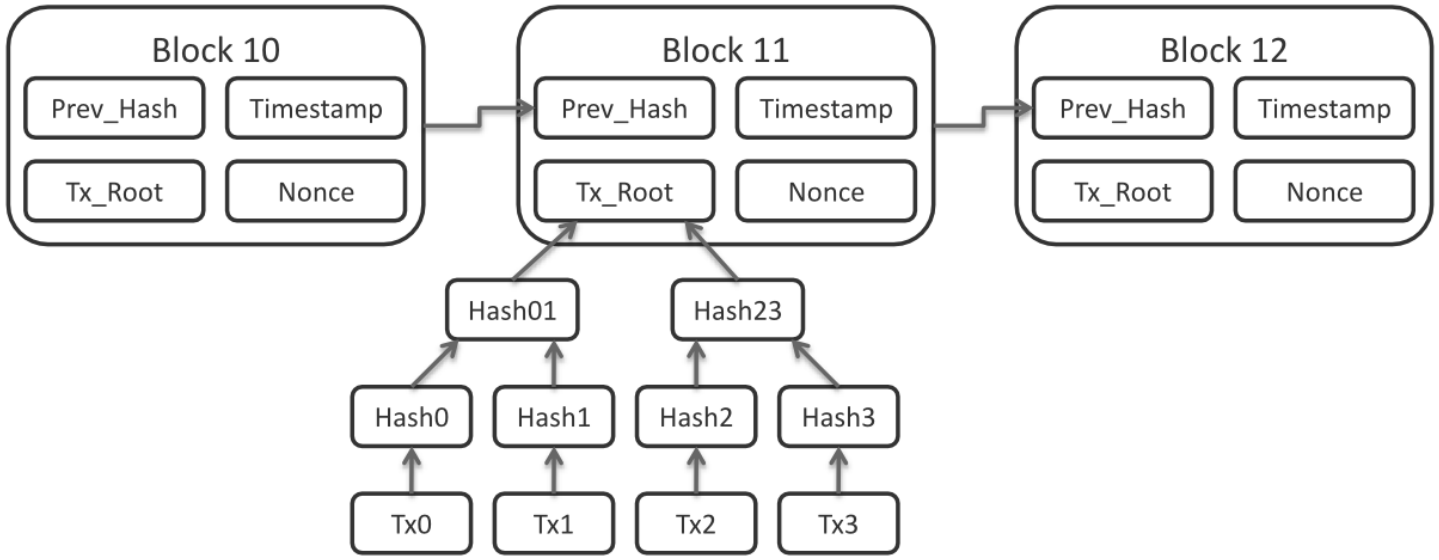
Low Cost + High Security in Low-trust Environment

It's just Decentralized Databases + Business Process Automation!

***Assets* get entered onto the ledger and generate keys**

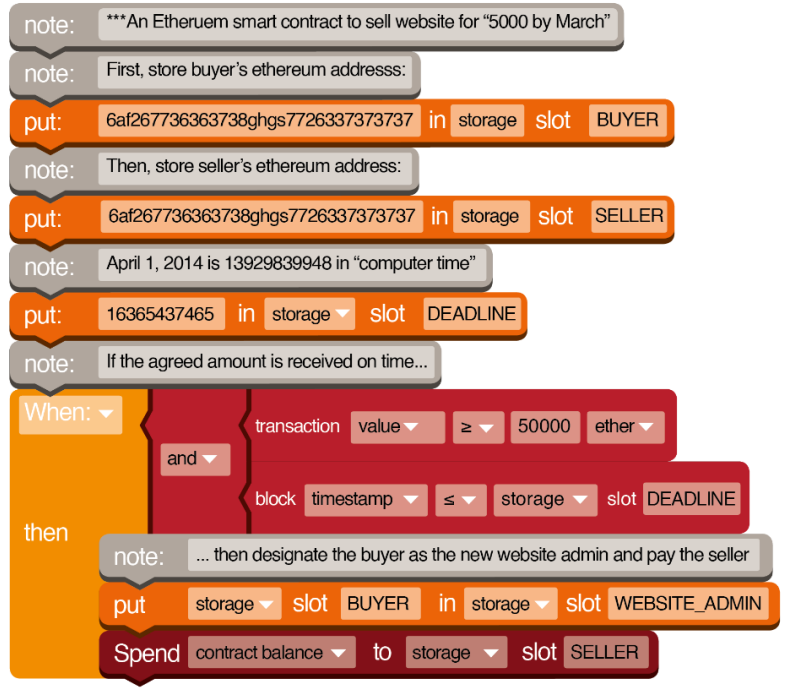
Network Consensus on who did what…

Smart Contracts execute legal agreements + business processes



The Transaction is the Settlement

A sample of EtherScript



Learning Curve: Development Platforms

Transaction Marketplaces

Decentralized exchanges to disrupt* the third-party while opening up service stack for new value driven services. **Low fees may still apply.*

iTunes without iTunes
Smart Contracts disperse payments

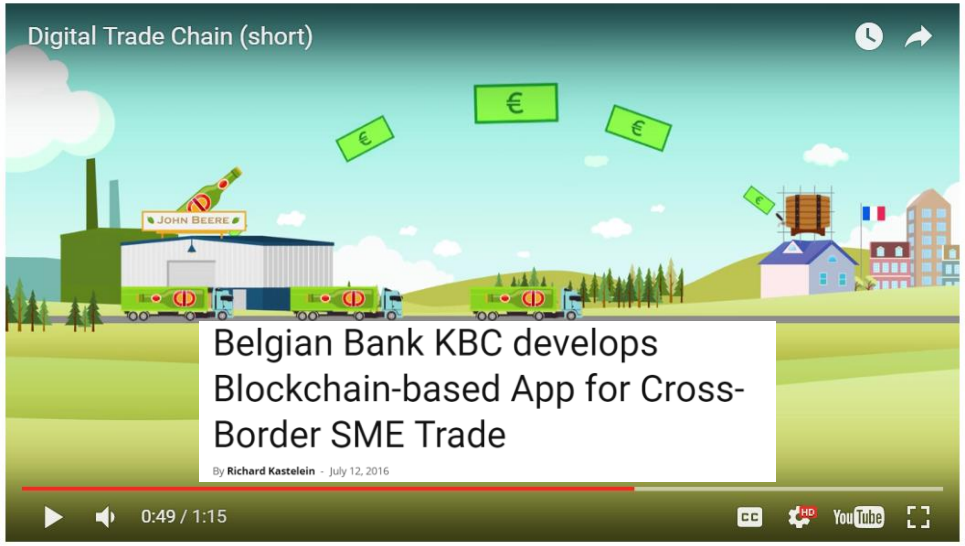
Uber without Uber
Distributed Ridesharing

ebay w/o ebay
Distributed Marketplace

Peer to Peer Energy Trading

Supply Chains + Logistics

Distributed Supply Chains for efficiency, low cost, transparency and automation for origin verification, manufacturing logs, OEM assembly, shipping, fulfillment, financing, value added taxes, and settlement.



Enhance Trust. Access Capital.

DISTRIBUTED TRADE — Learn how blockchain technology is revolutionizing supply chain — St. Louis, Missouri - June 14, 2016

PROVENANCE

Fluent

skuchain

WAVE

Open Trade Docs

nimber

Could supply chains be radically expanded for smaller businesses?

Applications: Supply Chains

CHRONICLED

Preparing for (DSCSA)
Drug Supply Chain Security Act

IBM partners with Nestle, Unilever and other food giants to trace food contamination with blockchain

- IBM has announced a blockchain collaboration with food giants including Nestle, Unilever and Walmart.
- The corporation said blockchain would enable food businesses to trace the source of contaminated produce in mere seconds.
- Blockchain maintains a digital ledger of transactions rather than a physical one.

Application: Liquidity & Financing Ecosystems

Sweetbridge

A blockchain-based protocol stack for global commerce and supply chains

Bridgecoin

1. A stable currency
2. Pegged to fiat currency
3. Your key to using the Sweetbridge Fund liquidity application

Sweetcoin

1. Enables interest-free borrowing
2. A limited-supply currency
3. Your key to exchanging Bridgecoin for fiat & using the Settlement application at no fee

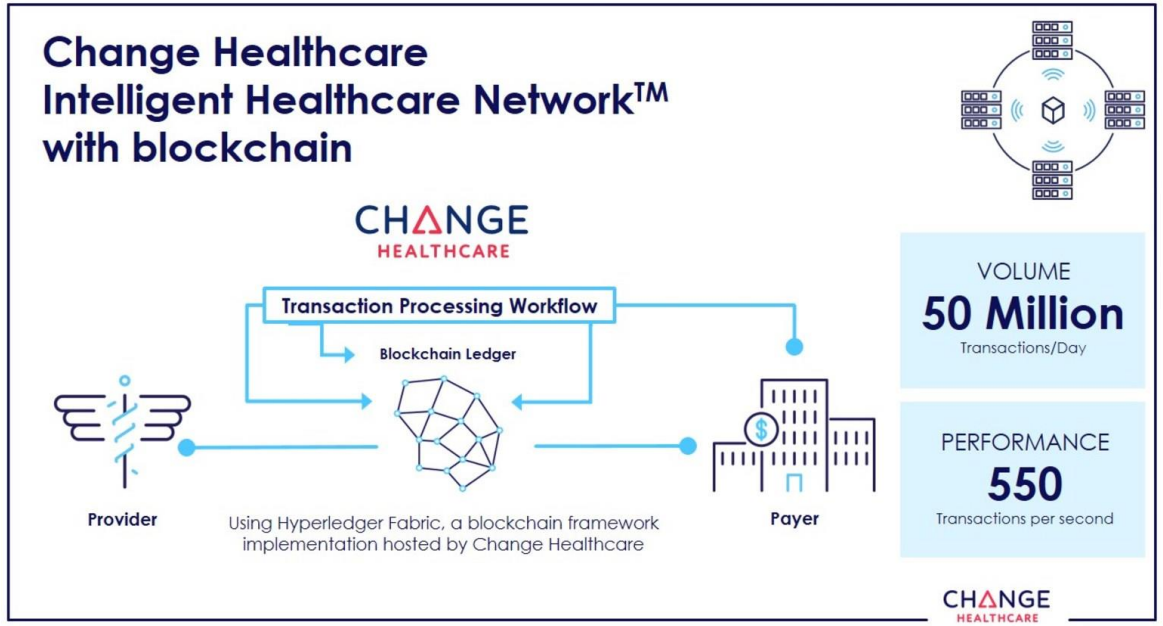
Applications: Business Processes & Revenue Cycle

Gem

PHILIPS

CapitalOne

CHANGE HEALTHCARE



DApps for Public + *Third* Sector

Government Services

- ❑ Identity
- ❑ Regtech (Compliance)
- ❑ Budget Transparency (Fraud + Corruption)
- ❑ Voting
- ❑ Land Registry
- ❑ Financial Inclusion

UK government using blockchain to track welfare spending

The UK government recently began a trial using blockchain technology to track the distribution of benefits, which has raised some privacy concerns.

By Conner Forrest | July 14, 2016, 7:22 AM PST

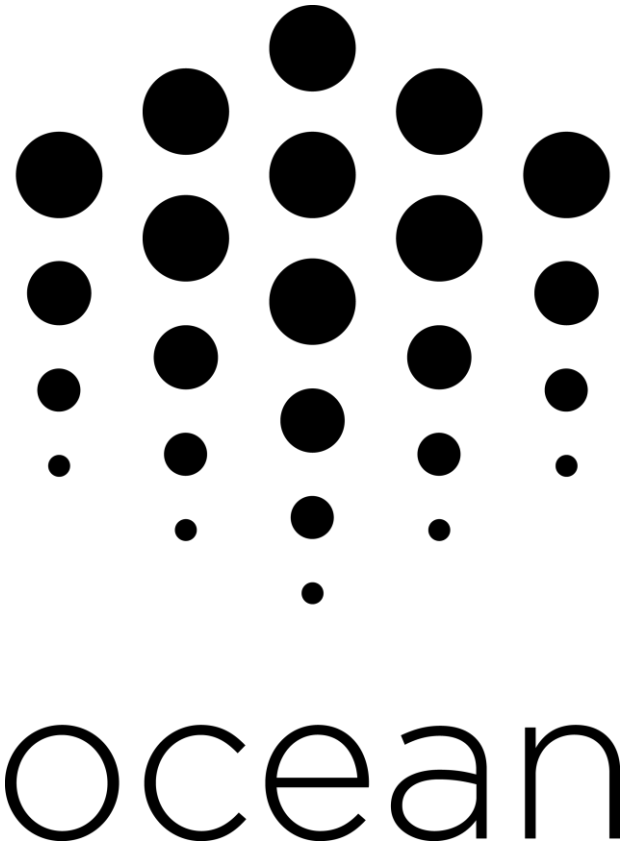
U.S. Gov't Announces Blockchain Healthcare Contest

By ***Jamie Redman*** - July 9, 2016 6303 11

Dubai to use blockchain technology for all government documents by 2020

"will only need to enter personal data or business credentials once"

Application: Data Marketplaces & Exchanges



datum

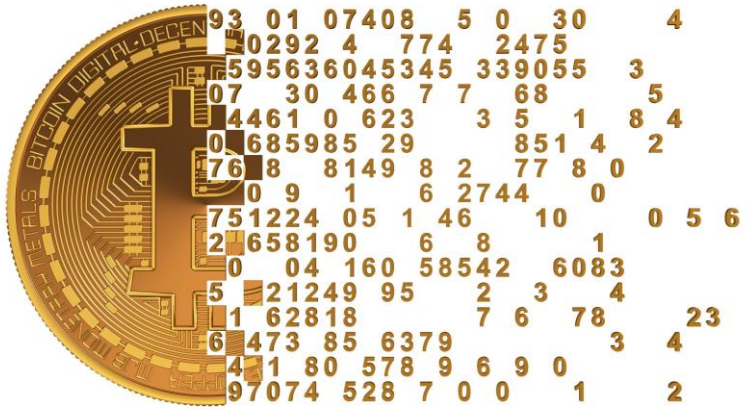
intertrust

BOTTOS

SPHERITY

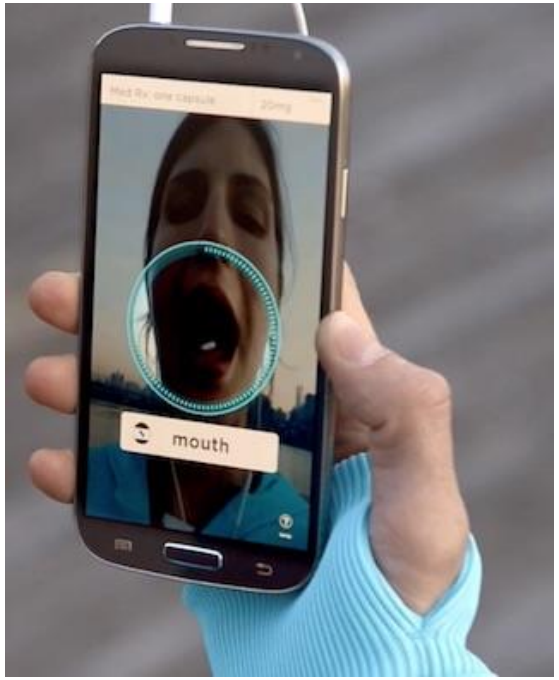
Crypto Currencies Tied to Behavior Change

Incentivized Patients…



Crypto Currencies + Smart Contracts
Automate Incentives for Adherence

AiCure



Learn More

Connect the Dots

- ❑ **Understand Fundamentals vs Fanaticism**
  Watch out for Tribal Thinking + Trolling on Twitter!

- ❑ **Key Concepts**
  Merkel Tree; Crypto/SHA-256; Proof of Work/Stake
  Blockchain (Public vs Private)

- ❑ **Key Development Platforms**
  Bitcoin; Ethereum; Hyperledger; Cardano; Cosmos (Tendermint)

- ❑ **Garry's tags**
  Blockchain; Smart Contracts

End

Next Steps
Discussion

How will the World See Your Commitment to Lifelong Learning & Collaboration?

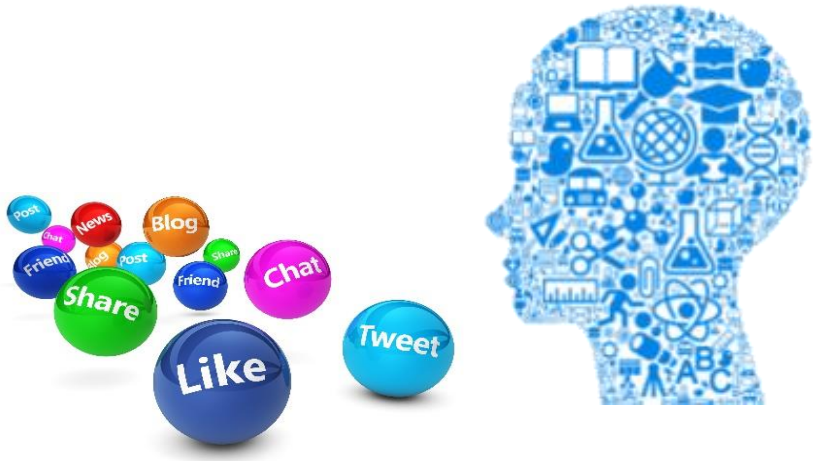
Resume

Portfolio

Presence

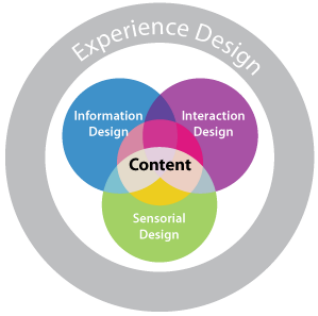
Your Presence reflected via…

- ❑ How you create your learning network…
- ❑ How you interact within professional communities…
- ❑ How you share…
- ❑ How you comment…
- ❑ How you ask questions…
- ❑ How you frame problems…



Professionalize Your Presence around Thoughtful Communities

Listen + learn – hold off comments. Then join the conversation with curation & questions!

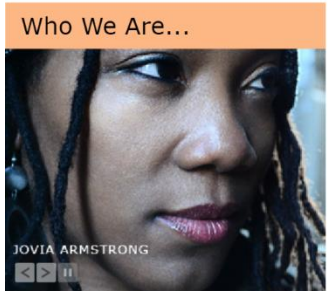


Experience Design

'The Blockchain'

Neuro Science

ATA
Association of Teaching Artists



Teaching Artists
(Creativity + Collaboration)

#datasci

Data Scientists
(Graph Analytics)

Community Members

Skill Sets + Mindsets for the Future

Imagine Your Growth as a T-Shaped Individual

“I” Shaped

“T” Shaped

I-shaped Story

Encouraging Depth of Skills that…

- ❑ Are in demand
- ❑ Looks great on a resume
- ❑ Industry or domain-specific
- ❑ Shows discipline + commitment

T-shaped Story

Broad set of Skill Sets & Mindsets

Depth of Subject Expertise

Encouraging Breadth of Skills that…

- ❑ Appeal to organizations hiring *learners*
- ❑ Embraces curiosity amidst uncertainty
- ❑ Shows desire to integrate solutions

- **Service/Experience Design**
- **Data Science**
- **Design Thinking**
- **Visual Communication**
- **Ethnography**
- **New Digital Literacies**
  (e.g. Working with A.I.)

- **Leadership**
- **Values / Ethics**
- **VR + AR Storytelling**
- **Entrepreneurship**
- **Behavioral Economics**
- **Sociology / Demographics**
- **Foresight**

Be Able to
Tell Stories
of Your Failures