Reshaping the Supply Chain Through Digital Platforms

Cambridge International Manufacturing Symposium – Cambridge UK
September 26, 2019

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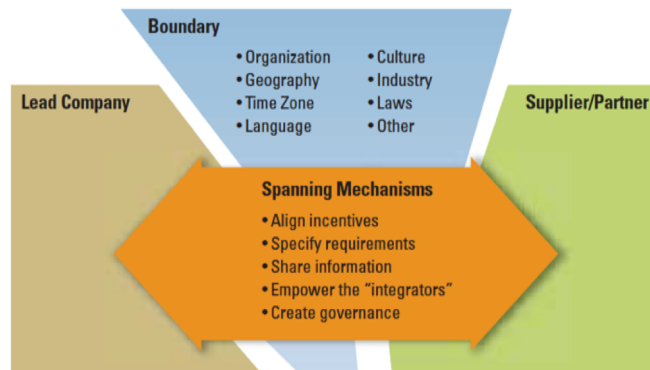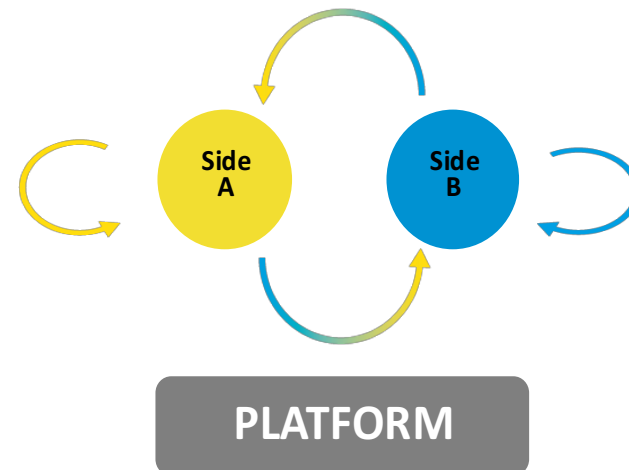
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Parker Research Program Themes

Learning, Supply Chain Coordination, and Energy

Network Effects and Platforms

Separate research streams converging

Platform Revolution: Making Networked Markets Work for You

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Sangeet Choudary
Platformation Labs
@sanguit

FORCES OF CHANGE

Trends likely to continue and intensify

FIRM

Age of Networks
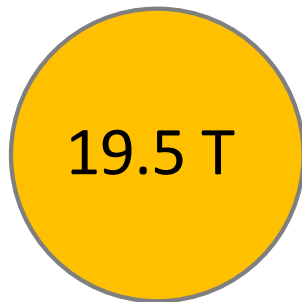Networks connect physical, digital, and social
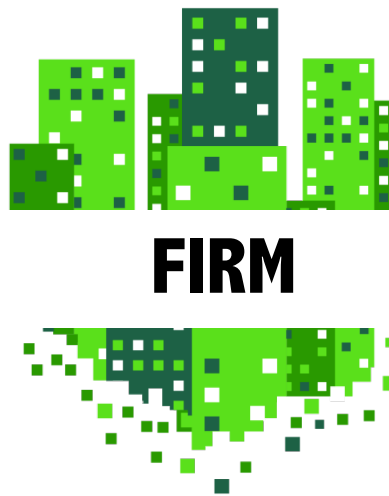
Age of Data
Surge in data and tools that can manage and analyze data

Age of Platforms
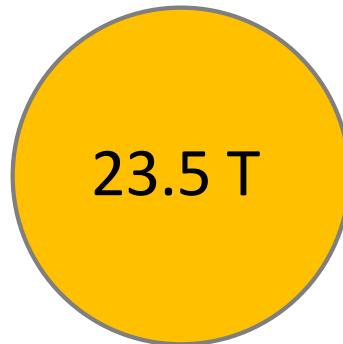New business models that that leverage networks and intelligence

Source: P. Evans, "Networks, Data and Platforms," in *Growing Global: Lessons for the New Enterprise*, Center for Global Enterprise, 2015.

GLOBAL ECONOMY IS RELATIVELY BALANCED

North America

Asia

Europe
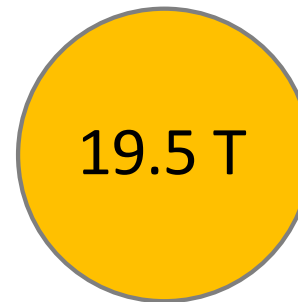
Africa, Latin America, ROW

19.5 T

23.5 T

19.5 T

10.7 T

2015 Nominal GDP US$ Total: 73.1 T

Source: International Monetary Fund

Global platform landscape, Top 50 Platforms by Market Cap

United States
75%

Europe
3.7%

S. Korea
0.5%

China
16%

Japan
2.6%

L. America
0.1%

Africa 1.8%

MIT INITIATIVE ON THE DIGITAL ECONOMY

4
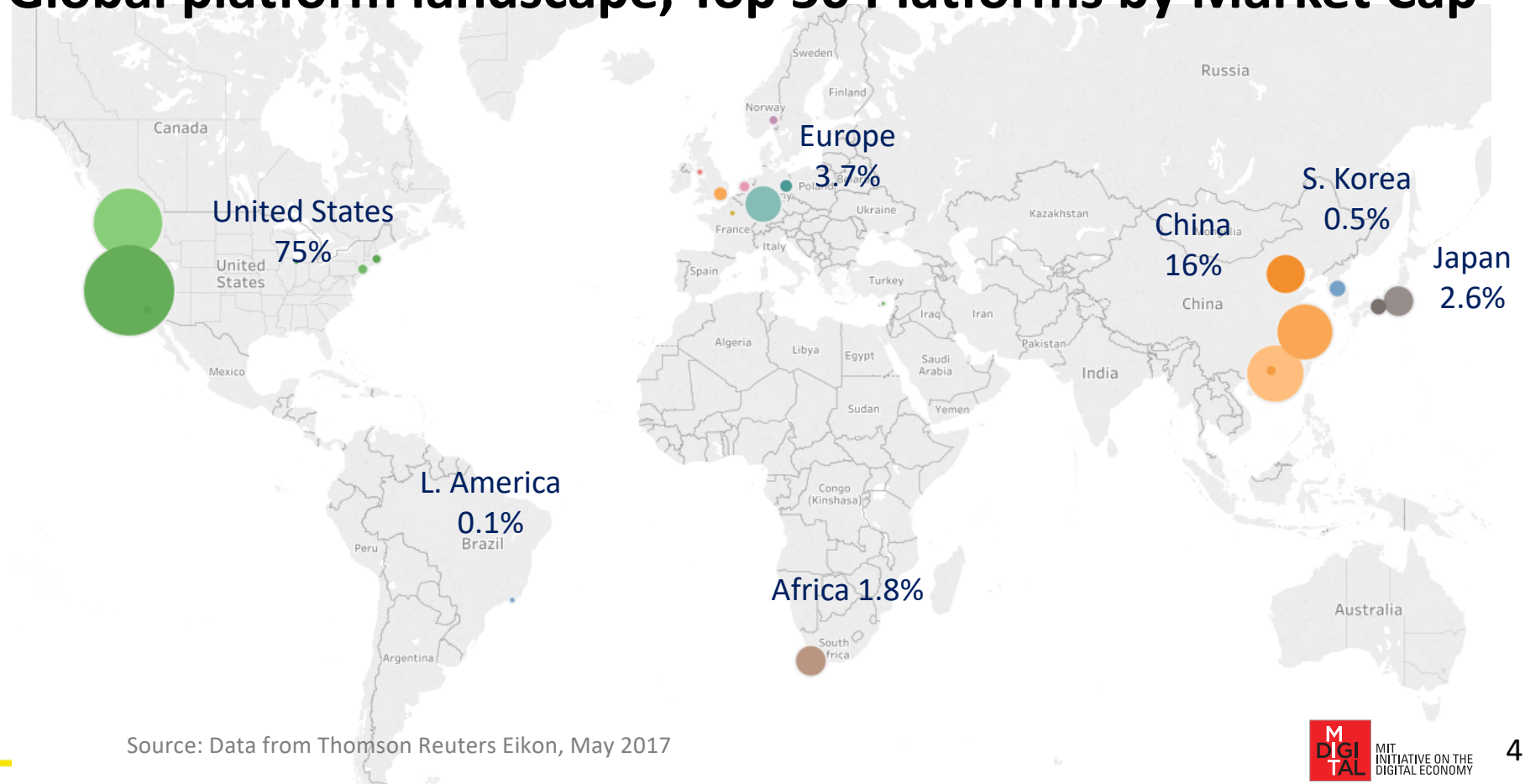
Platform Market Caps Displace Energy and Banking

Top 5 Publicly Traded Companies (by Market Cap)   ■ Tech   ⬡ Other

	#1	#2	#3	#4	#5
2001	GE $406B	Microsoft $365B	EXXON $272B	citi $261B	Walmart $260B
2006	EXXON $446B	GE $383B	TOTAL $327B	Microsoft $293B	citi $273B
2011	EXXON $406B	Apple $376B	PetroChina $277B	Shell $237B	ICBC $228B
2016	Apple $582B	Alphabet $556B	Microsoft $452B	amazon $364B	facebook $359B

Traditional Resource Firms are Asset Heavy

http://www.marasinews.com/offshore-oil-gas/saudi-aramco-nabors-sign-jv-onshore-drilling-rigs

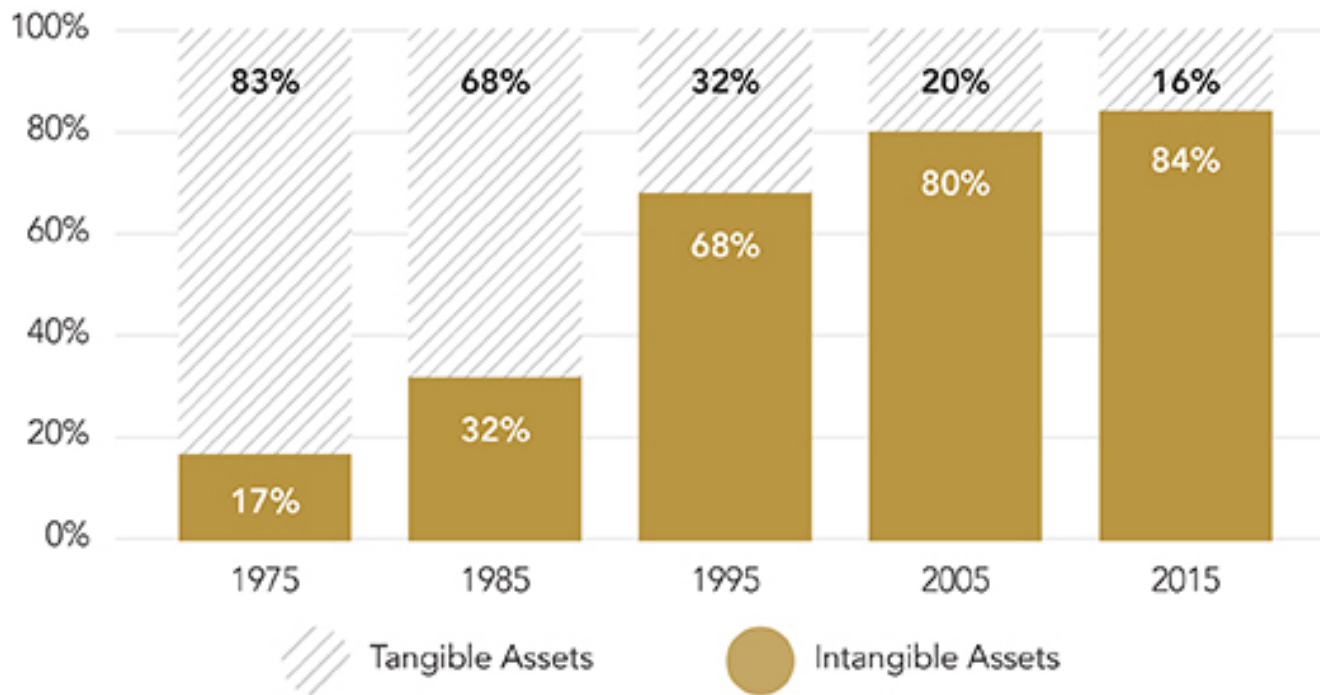http://petrol.cz/aktuality/omv-rozsiruje-sve-tezebni-portfolio-v-severnim-mori-2900.aspx

Photo by G. Parker

Many Platform Firms are Asset Light

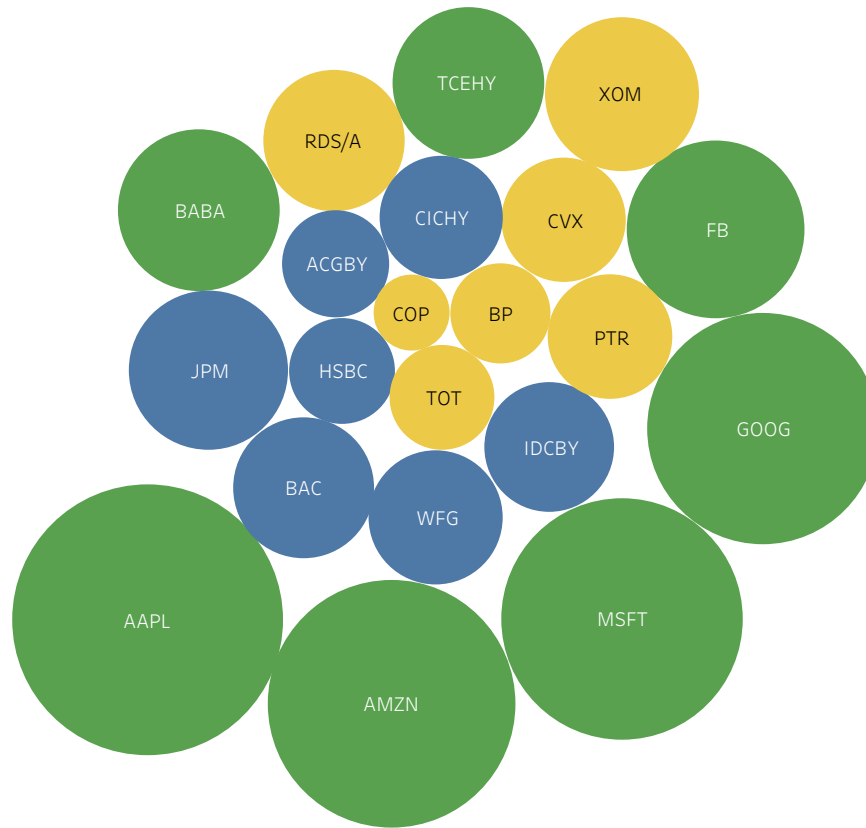# Tangibles/Intangibles have traded places

Components of S&P Market Value
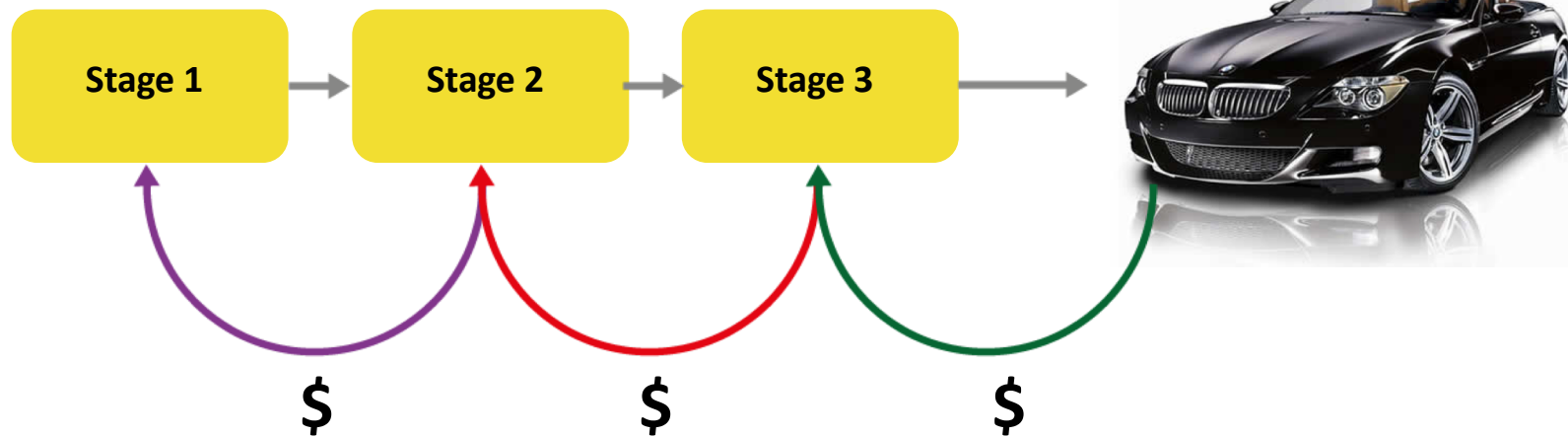

Source: Oceantomo

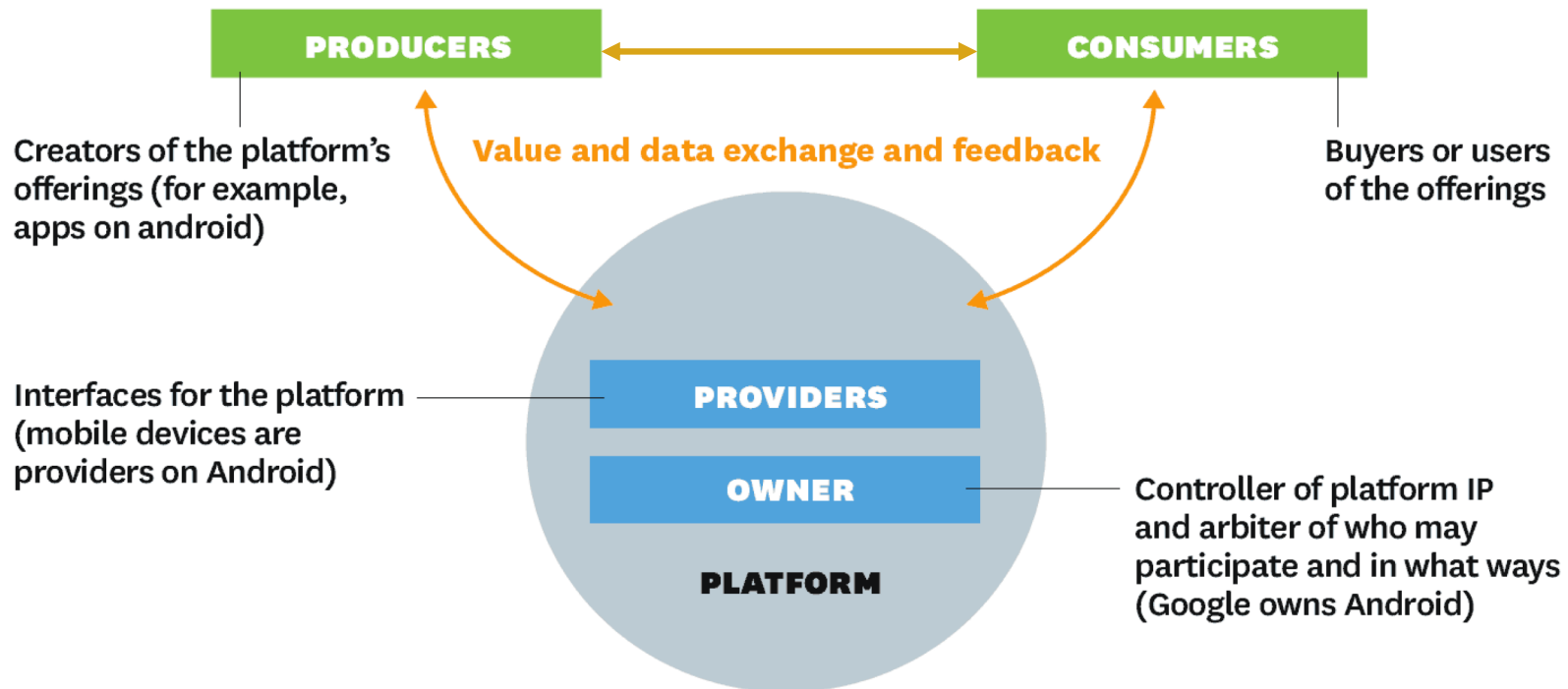# Top 7 Bank, Oil, and Platform Firms by Market Cap

(17-Oct-2018)

Sector

Top 7 Market Cap

Bank — $1.7 T

Oil — $1.5 T

As of 17-Oct-2018. Data from Yahoo Finance

Traditional Linear Chain: "Pipes"

Stage 1	→	Stage 2	→	Stage 3	→

$ $ $

Value accumulates from stage to stage
Minimal Network Effects

The Players in a Platform Ecosystem

PRODUCERS ⟷ **CONSUMERS**

Creators of the platform's offerings (for example, apps on android)

Value and data exchange and feedback

Buyers or users of the offerings

Interfaces for the platform (mobile devices are providers on Android)

PROVIDERS

OWNER

PLATFORM

Controller of platform IP and arbiter of who may participate and in what ways (Google owns Android)

Structure of Platforms

Side "A" ← **Direct Exchange of Value** → **Side "B"**

PLATFORM

Simple at first, then can Become Multisided

Users ← **Direct Exchange of Value** → **Advertisers**

Google

Simple at first, then can Become Multisided

Users
Advertisers

Direct Exchange of Value

Google

Direct Exchange of Value

3rd-party sites (AdSense)
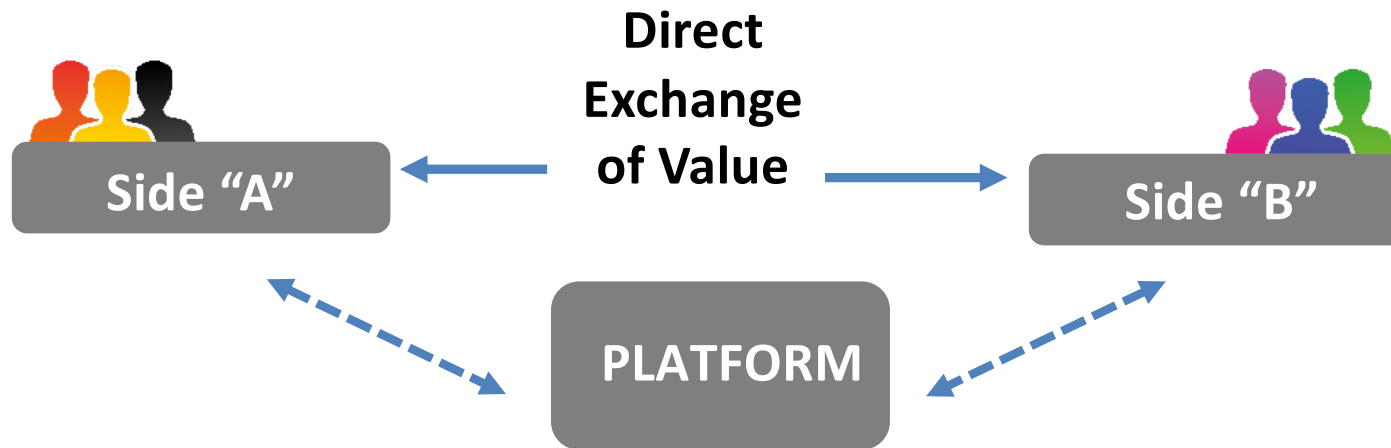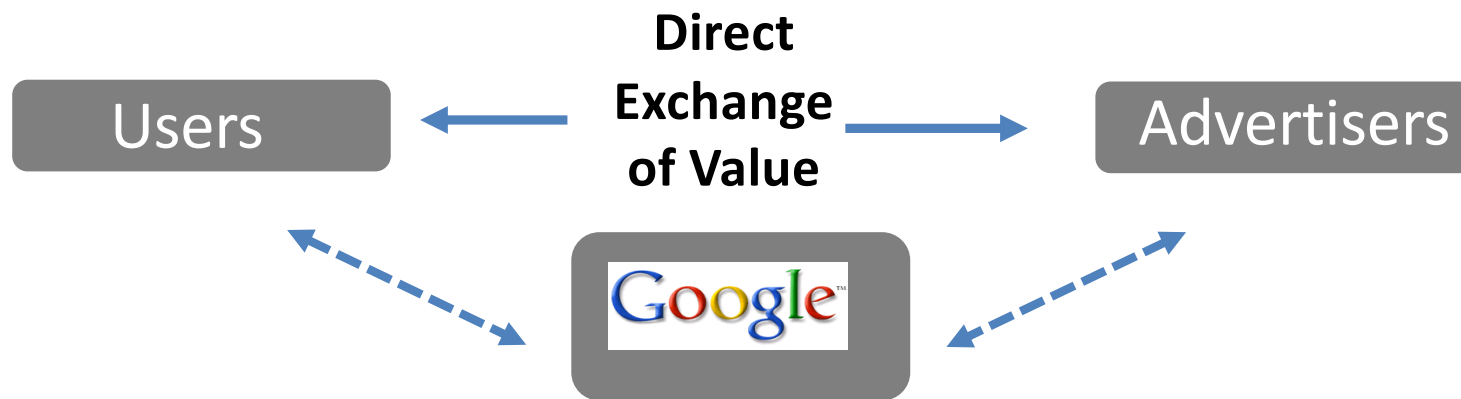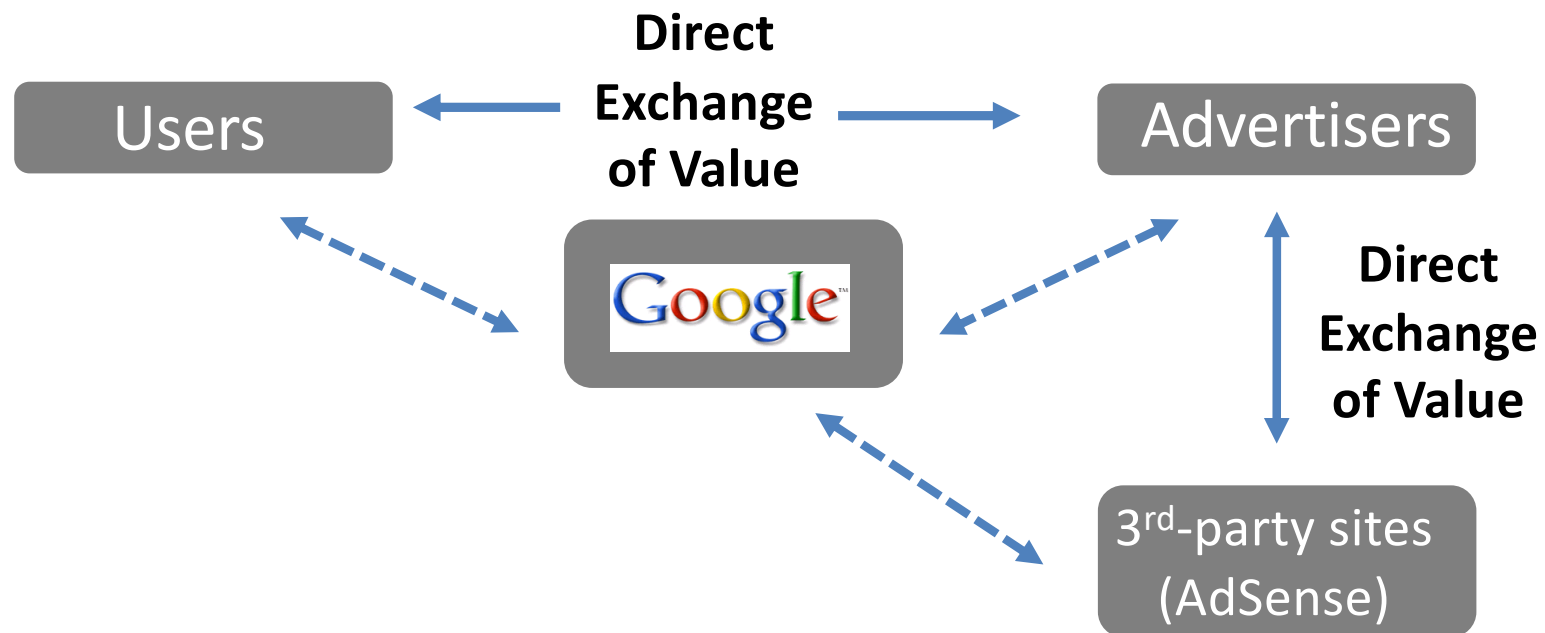
Platforms tend to get more complex over time

Professionals ⟷ App Developers

Advertisers

Recruiters

Corporations

LinkedIn

Education
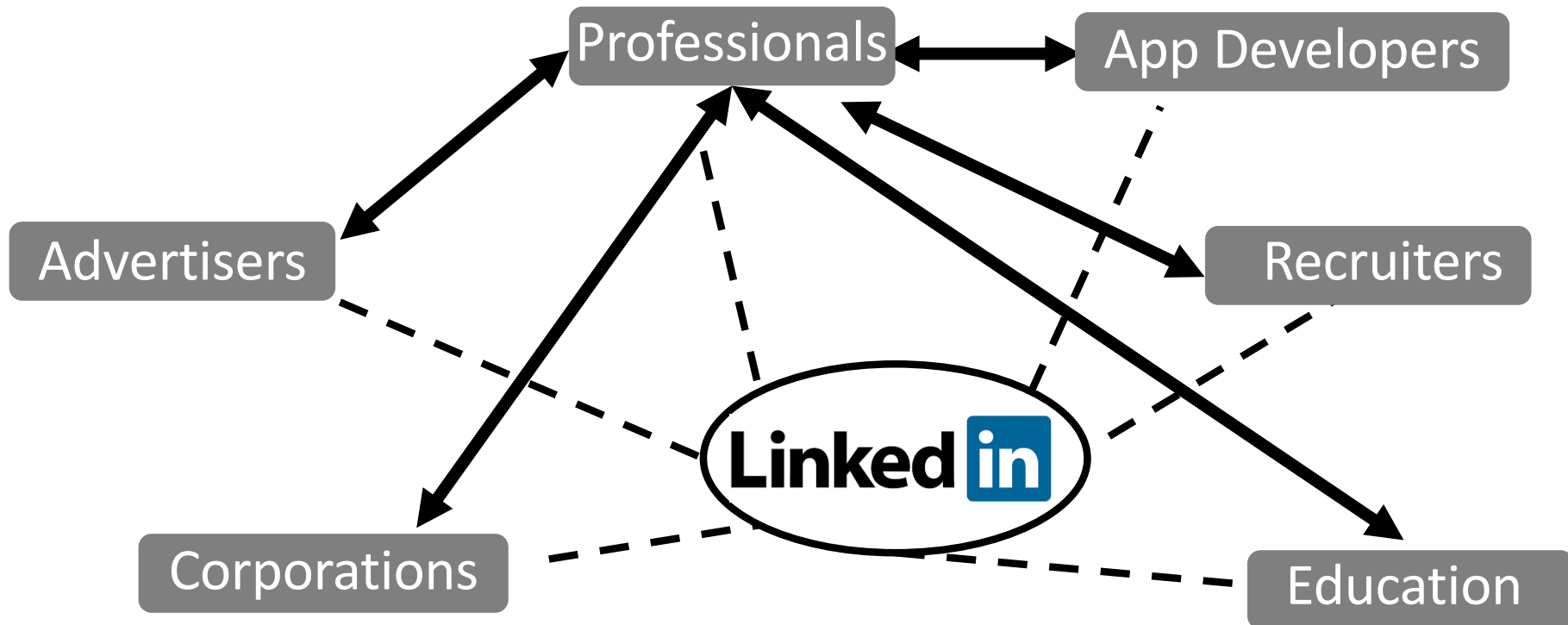
Same Firm can be both Platform and Pipe

Amazon Launched as a Pipe

SELLERS ⟶ amazon.com ⟶ BUYERS

Amazon MarketPlace as Platform

SELLERS ⟷ BUYERS

amazon.com

Key difference: cost structure (control & responsibility), risk

Adapted from: Andrei Hagiu

A PLATFORM:

- Is a nexus of rules and architecture
- Is open, allowing regulated participation
- Actively promotes (positive) interactions among different partners

SIDE A

SIDE B

PLATFORM

Source: Platform Revolution
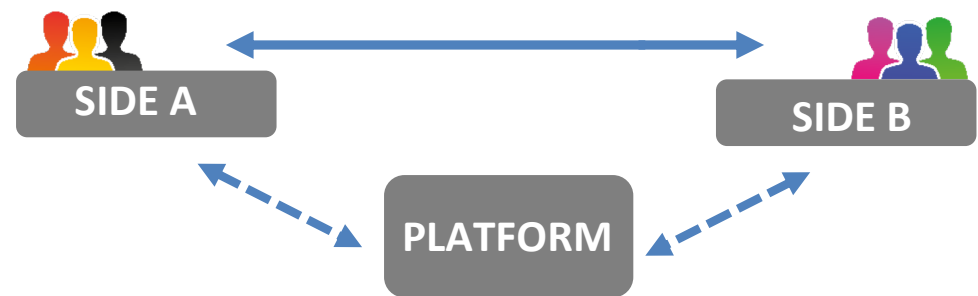
Inverted Firm:
Platforms Orchestrate External Value Creation

Platform value to users: $V + \alpha f(N)$

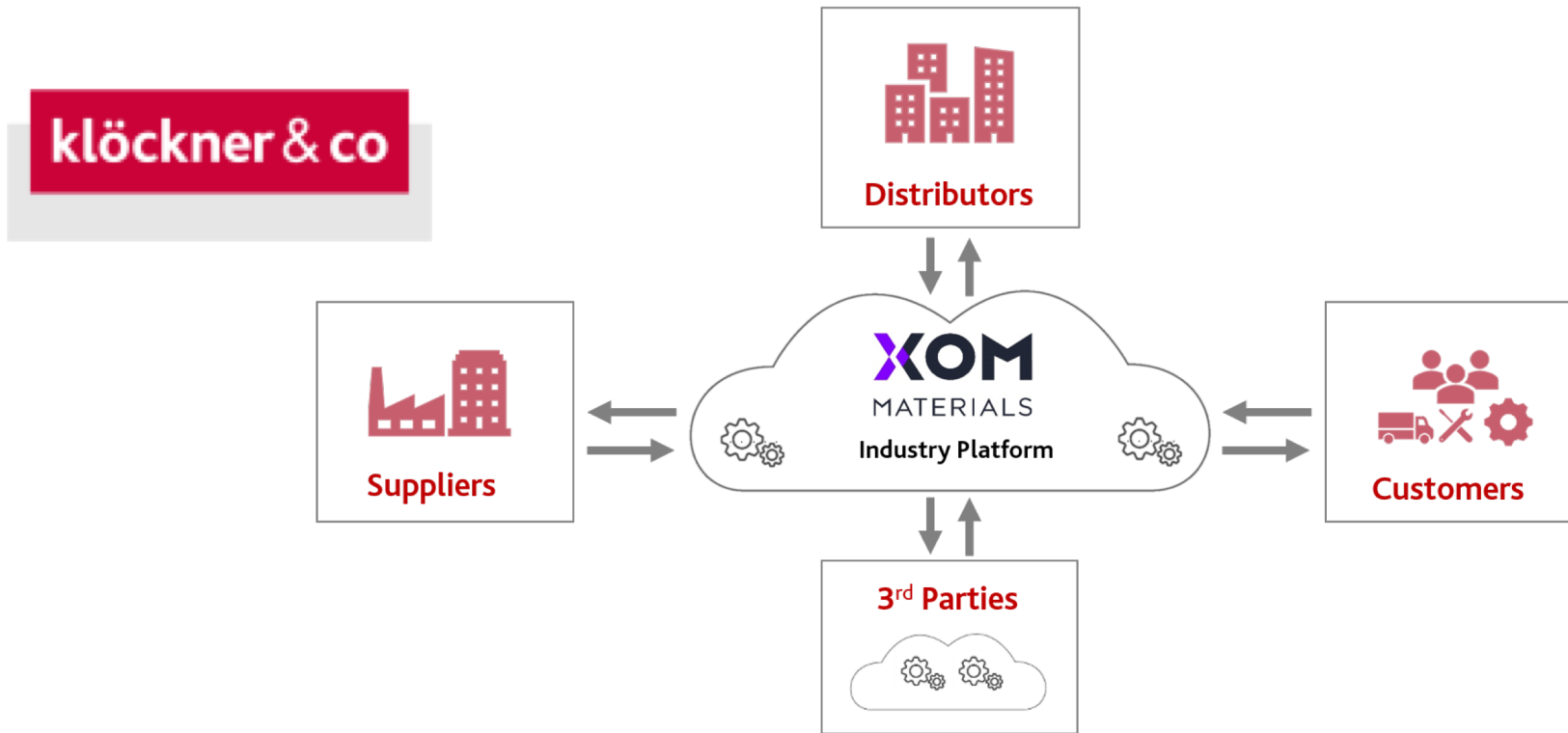V = standalone value, $\alpha f(N)$ = network value

Automobiles: V is large, $\alpha f(N)$ small (but growing)

Social Network: V is small, $\alpha f(N)$ large

Source: G. Parker, M. Van Alstyne, X. Jiang, (2017) ``Platform Ecosystems: How Developers Invert the Firm.'' MIS Quarterly. Vol. 41, No. 1.

Klockner Steel adopting explicit platform strategy

Other "Brick and Mortar" firms also building data layers necessary to eventually create platforms

Cemex "Go" platform reaches 35,000 users

… many product/service companies are trying to or already have become Platforms

Firms are investing in building their data layers

New locus of value <u>creation</u> and <u>capture</u>

Agriculture

Energy

Healthcare

Banking
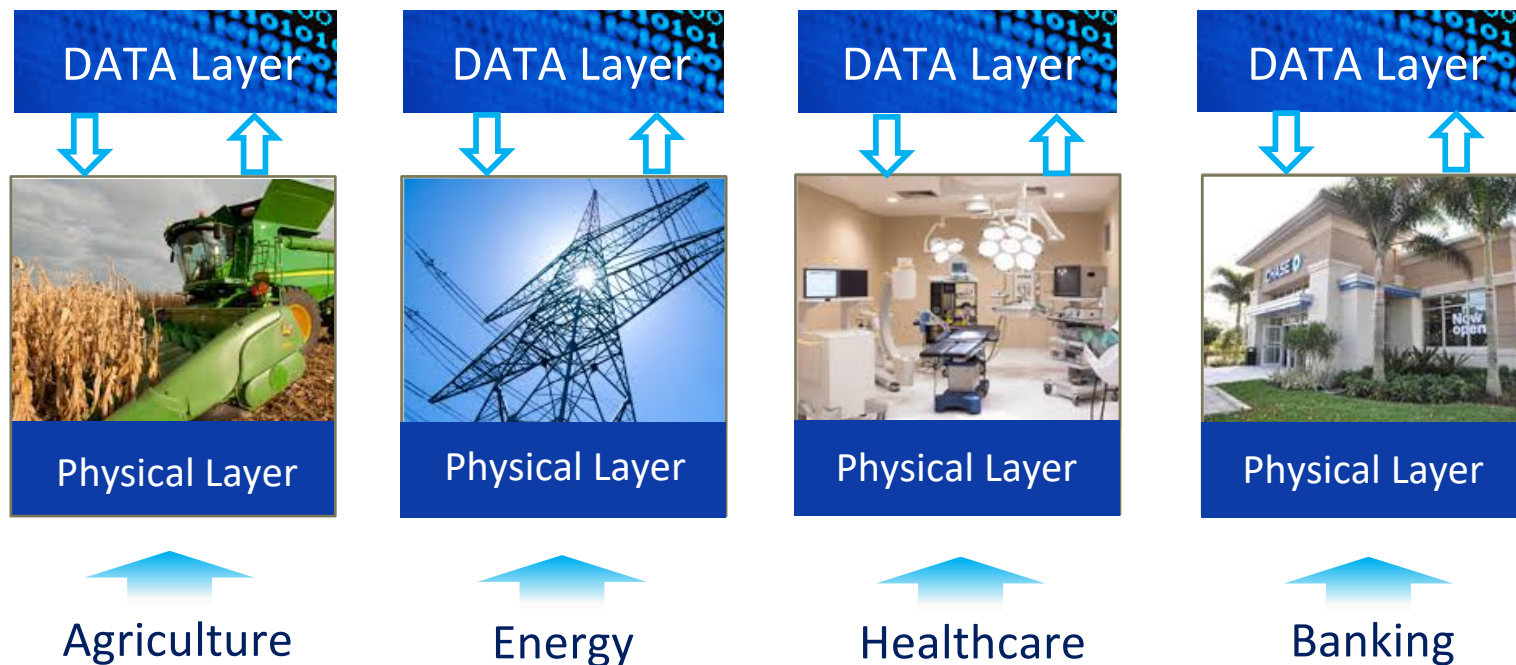
Source: P. Evans, CGE, 2015

Service value of industrial machines
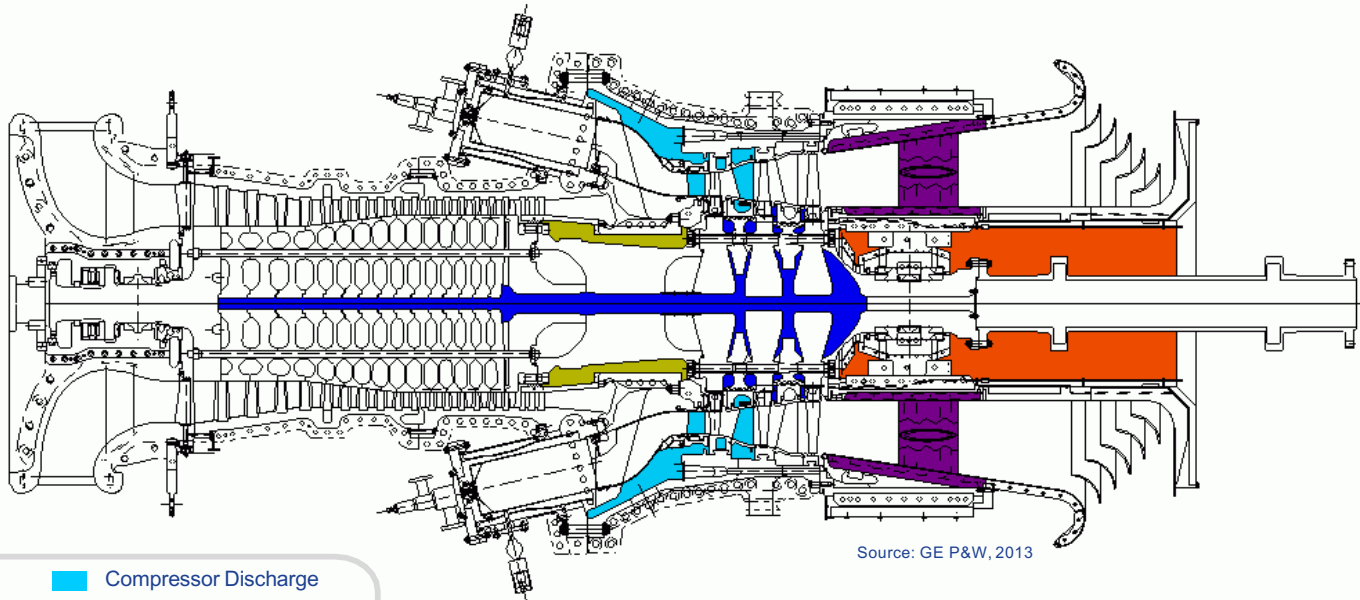
Source: GE P&W, 2013

Legend:
- Compressor Discharge
- 16th stage
- 17th stage
- Frame blower
- Bearing Tunnel cooling

* Grace and Christiansen, "Quantifying the cost of unplanned outage events for combined-cycle plants," *Energy Tech*, August 2012

The net revenue lost due to unplanned outages is $775,000 per year for the 250 MW F-class plant, or roughly 4-5 percent of net revenue income.*
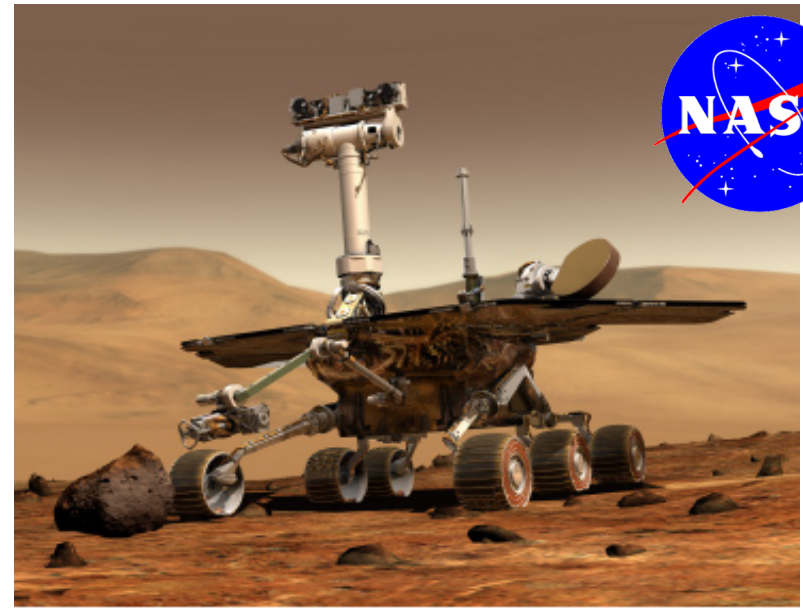
Slide Courtesy of Peter Evans

Advanced monitoring and analytics

Turbines monitored
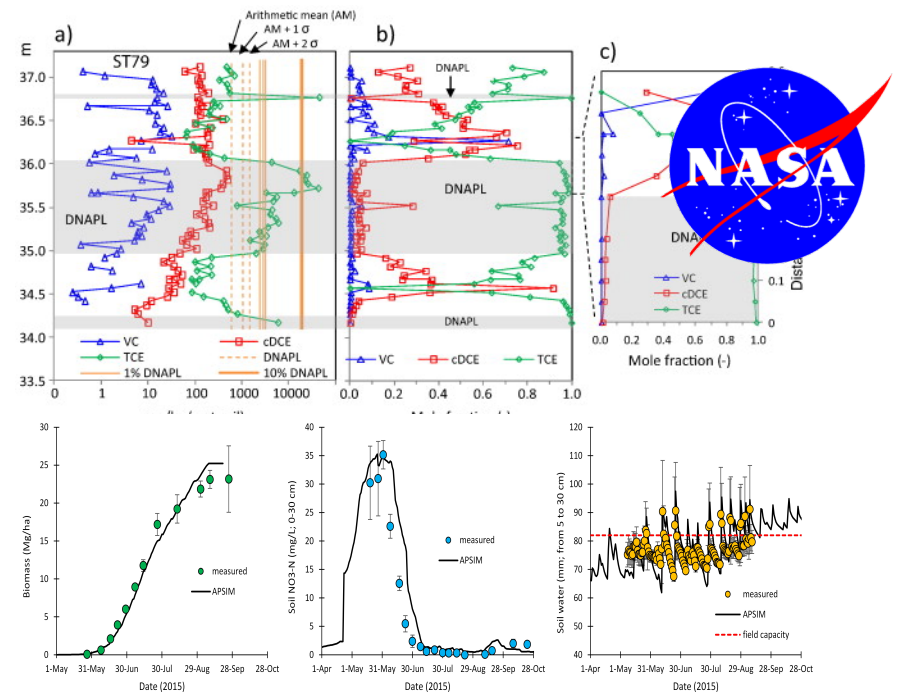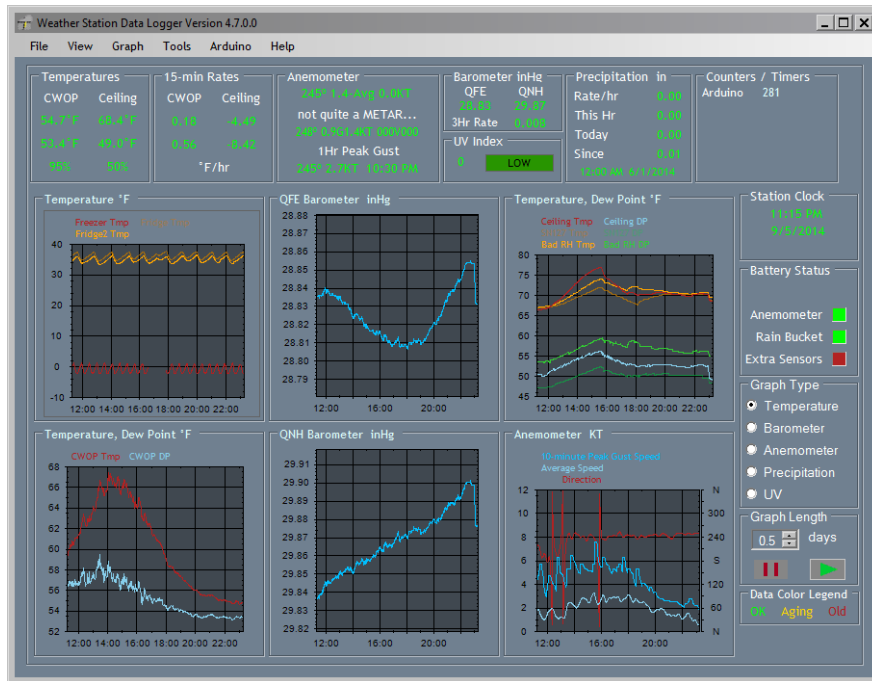
~1,550 units globally

24x7x365 coverage

Slide Courtesy of Peter Evans

Just a tractor?

Inputs: Precise location, temperature, humidity, soil samples, seed information
Outputs: Crop yields
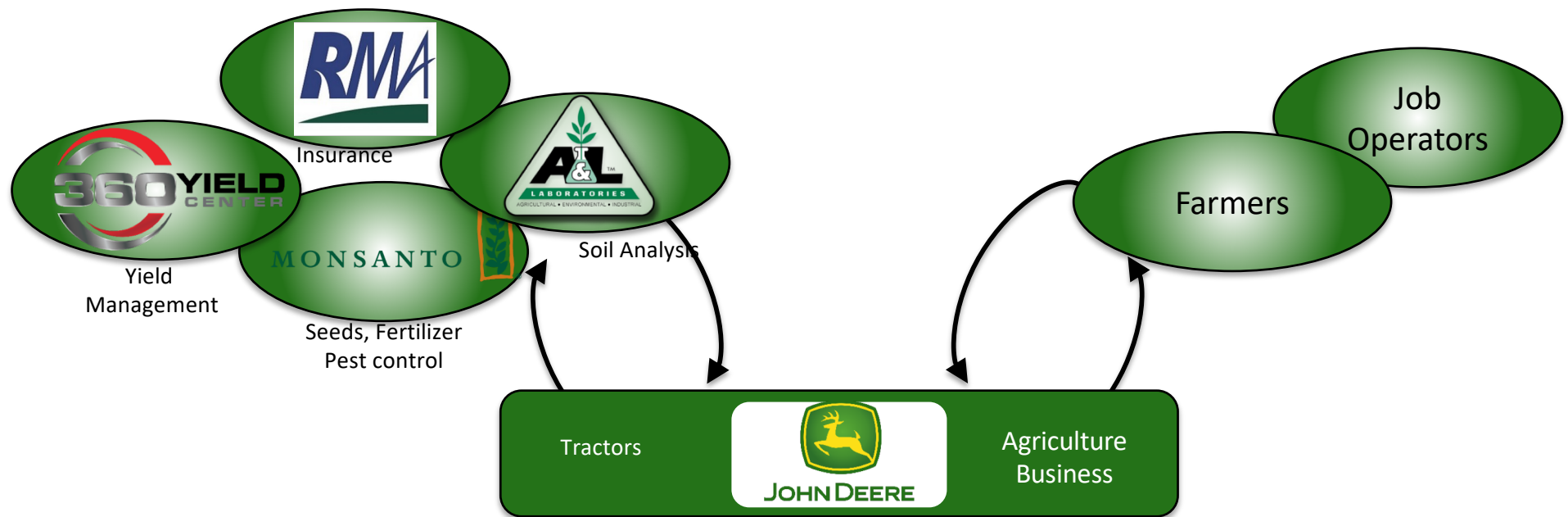
Just a tractor?

Inputs: Precise location, temperature, humidity, soil samples, seed information
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Digital Farming Platform

Digital Farming Platform
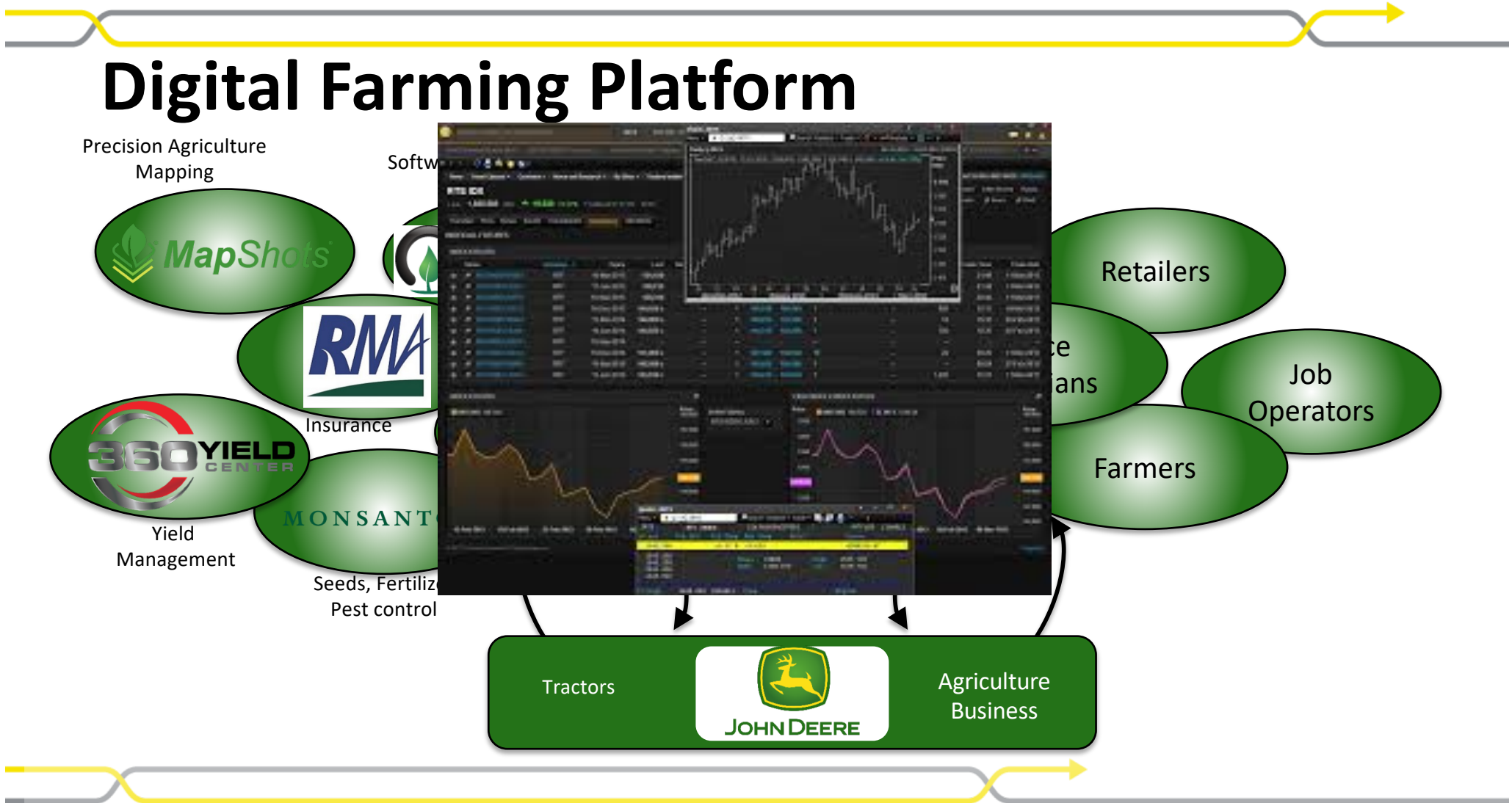
Precision Agriculture Mapping
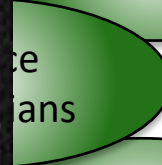
Softw

MapShots

RMA

Insurance

360 YIELD CENTER

Yield Management

MONSANTO

Seeds, Fertilizer, Pest control

Retailers

Job Operators

Farmers

JOHN DEERE

Tractors

Agriculture Business

Are Amazon and Walmart in the Same Business?

API Economy Visualized:

API Clusters

- Social media / web
- Job search / work
- E-commerce
- Tools / cloud / big data
- Enterprise / storage
- Payments
- Messaging services

API Economy Visualized: Amazon vs Walmart

Walmart

Alexa Web Inform

Amazon SNS

Amazon Marketplace

Amazon SimpleDB

Amazon Product Advertising

Amazon SC2

Amazon S3

Amazon RDS

Amazon DynamoDB

Amazon Flexible

Amazon CloudWatch

Amazon Mechanical Turk

Amazon Queue Service

Amazon Redshift

Companies

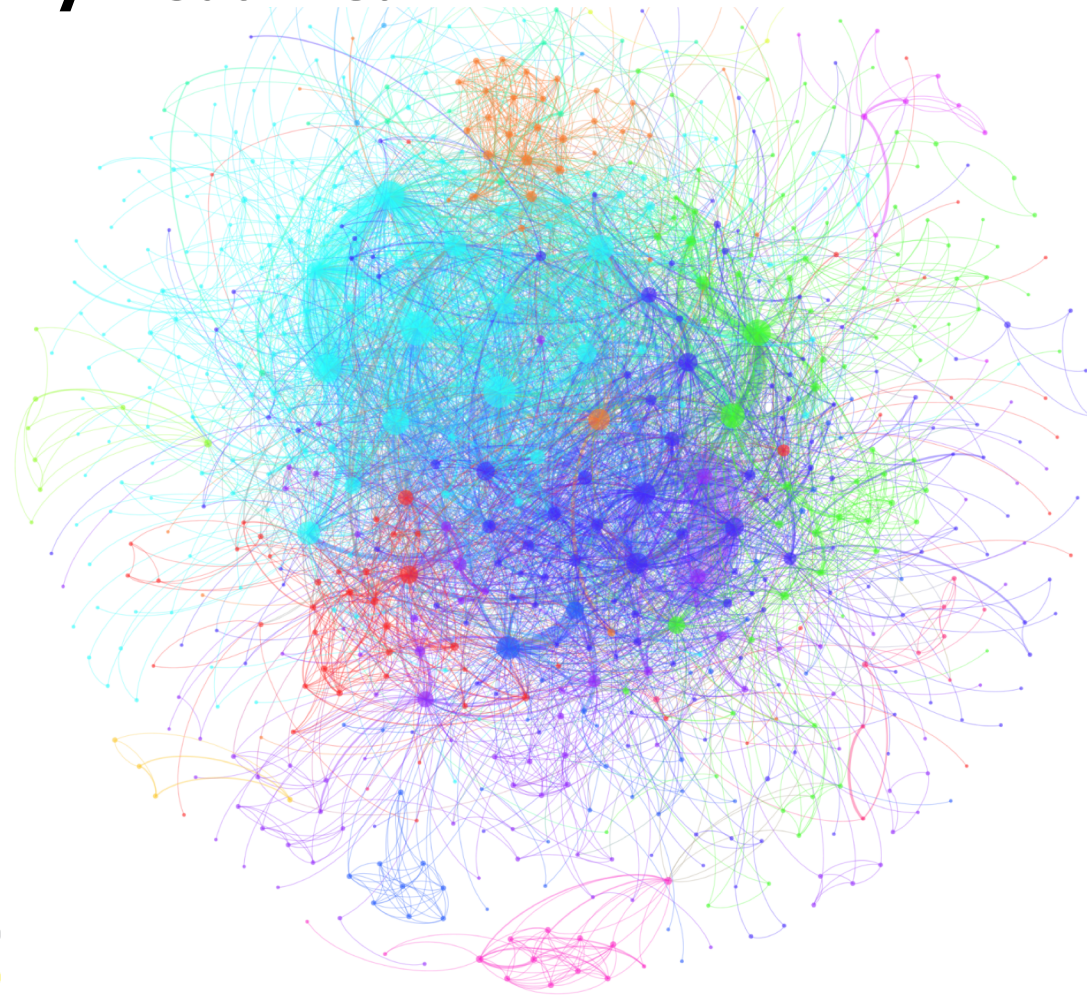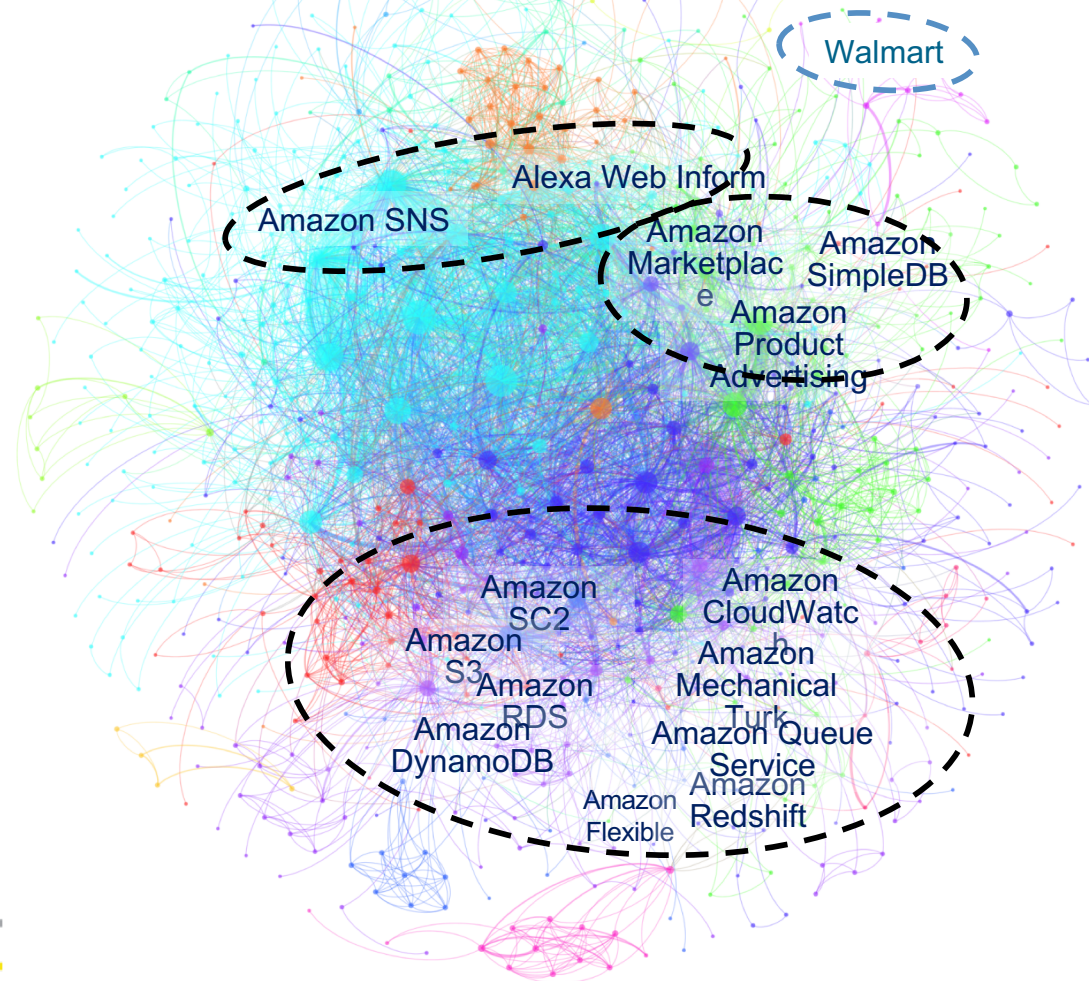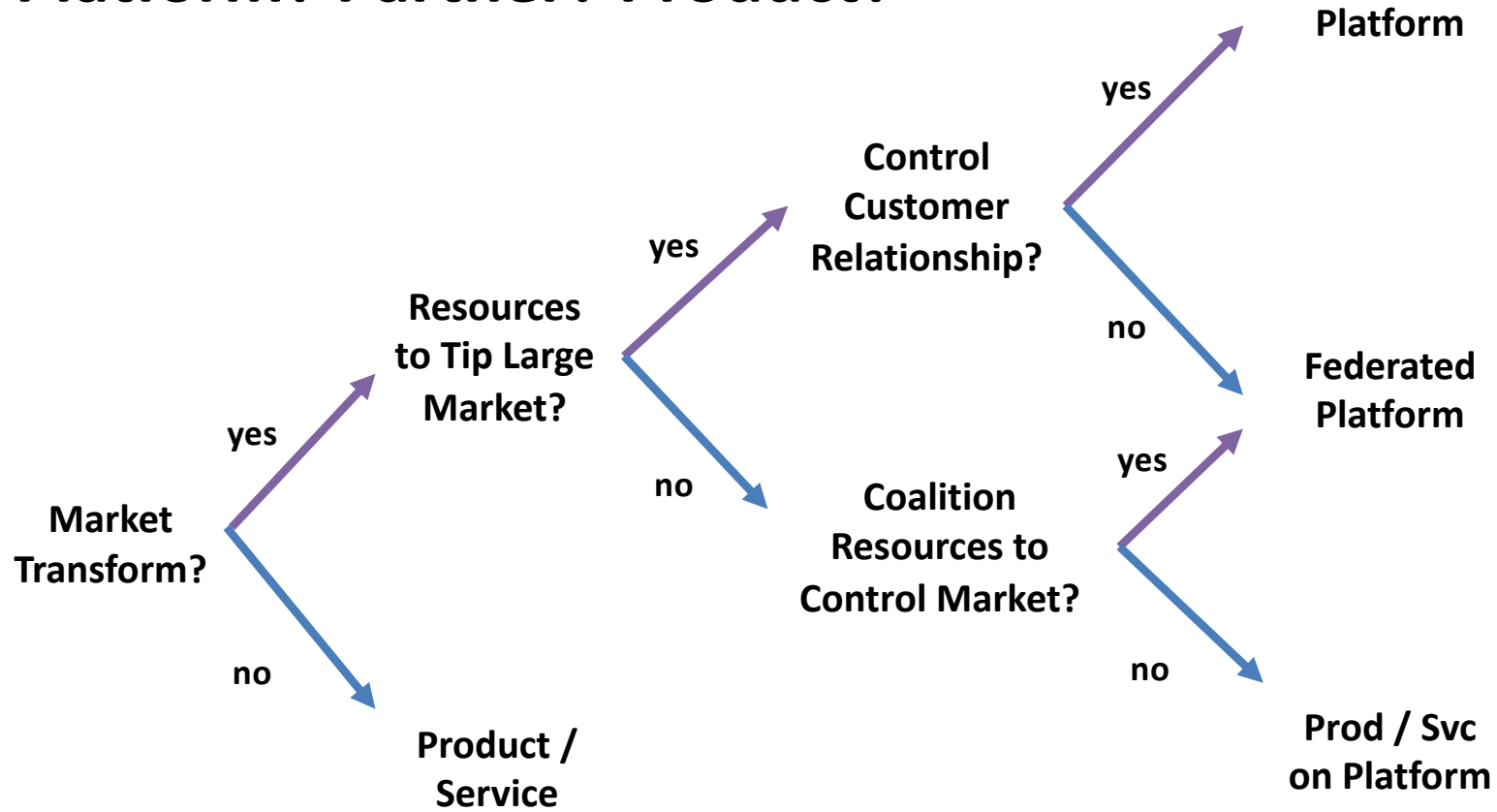- Walmart
- Amazon

API Clusters

- Social media / web
- Job search / work
- E-commerce
- Tools / cloud / big data
- Enterprise / storage
- Payments
- Messaging services

Manager's challenge

- Map the Ecosystem
  - Where is value being created?
  - Where is value being commoditized?
- Where can you participate and control value?
- At each position, decisions and strategy must be set
  - Build, Partner, or Participate

Platform? Partner? Product?

Platform

Control
Customer
Relationship?

yes

no

Federated
Platform

Resources
to Tip Large
Market?

yes

no

Market
Transform?

yes

no

Coalition
Resources to
Control Market?

yes

no

Product /
Service

Prod / Svc
on Platform

Strategies to avoid commoditization by larger platforms

- Maintain standalone presence & minimize MSP dependence
- Avoid price competition on MSPs – that's their game
- Fight for (shared) control over customer relationship
- Narrower scope (specialize), greater depth
- Platform arbitrage
- Build Platforms on top of Platforms

The Opportunity

- Once in a generation opportunity to reshape business

- Incumbents have strong assets: technology and customer relationships

- Partnerships critical; not every firm will be a platform but all will participate in platforms.

- Platforms require management functions and skills

- Risk of doing too little too late

Discussion

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