Platform Ecosystems: How Networks Invert the Firm

Marshall Van Alstyne
Boston University
mva@bu.edu
InfoEcon@twitter.com

Geoffrey Parker
Dartmouth University & MIT
Geoffrey.g.parker@dartmouth.edu
g2parker@twitter.com

Firm | Year | Empl. | Mkt Cap
---|---|---|---
BMW | 1916 | 116,000 | $60B
Uber | 2009 | 12,000 | $62B
Marriott | 1927 | 226,000 | $35B
Airbnb | 2008 | 5,000 | $31B
Walt Disney | 1923 | 195,000 | $178B
Facebook | 2004 | 20,000 | $489B
Kodak | 1888 | 145,000 | $30B (heyday)
Instagram | 2010 | 13 | $1B (acquisition)
The transition to Internet era firms resembles the transition to Industrial era firms ... but for the opposite reason.

These platform business models beat product business models every time.

Forces that generate platforms invert the firm, changing IT, marketing, human resources, finance, strategy...
Dominated by Platforms

World’s Most Valuable Companies

<table>
<thead>
<tr>
<th>Company</th>
<th>Market Cap ($B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apple</td>
<td>785</td>
</tr>
<tr>
<td>Alphabet (Google)</td>
<td>658</td>
</tr>
<tr>
<td>Microsoft</td>
<td>563</td>
</tr>
<tr>
<td>Amazon</td>
<td>500</td>
</tr>
<tr>
<td>Facebook</td>
<td>494</td>
</tr>
<tr>
<td>Berkshire Hathaway</td>
<td>427</td>
</tr>
<tr>
<td>Alibaba</td>
<td>390</td>
</tr>
<tr>
<td>Johnson &amp; Johnson</td>
<td>352</td>
</tr>
<tr>
<td>Exxon Mobile</td>
<td>342</td>
</tr>
<tr>
<td>JP Morgan Chase</td>
<td>322</td>
</tr>
</tbody>
</table>
Platforms are overtaking energy and banking

Source: Visualcapitalist.com, Bloomberg

The Product Business Model is Broken

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The Product Business Model is Broken

In 2009, BlackBerry had nearly 50% market share in U.S. operating systems, according to IDC. Now: 2.1%

2008  2009  2010  2011  2012  2013
50%  40%  30%  20%  10%  0%

Apple launched the PC revolution but Microsoft licensed widely, built a huge developer ecosystem, 6X larger.
InterBrand: 2016 Global Brands

Nike Builds a Biz Platform
How would you create a platform around spice?

1. Enumerate embeddable features: salty, citrus, sour, toasted, …
2. Get consumer preferences
3. Match to best recipes
4. Mix new combinations, help users create & upload, allow ratings, build a community

How are these Related?

1: Each side attracts the Other
2: They’re all outside
3: They interact

Uber Drivers, eBay Sellers, Xbox Developers, Amex Merchants, Aga Khan Doctors, YouTube Videographers, AirBnb Rooms, Tesla Charge Stations, Mechanical Turk Laborers, LinkedIn Employers, Upwork Projects, Android Developers

Uber Riders, eBay Buyers, Xbox Gamers, Amex Cardholders, Aga Khan Patients, YouTube Viewers, AirBnb Renters, Tesla Car Drivers, Mechanical Turk Jobs, LinkedIn Employees, Upwork Freelancers, Android Users
Network Effects: Users create value for Users

Giants of the Internet era resemble those of the Industrial era but for the opposite reason.
Giants of Supply Side Economies of scale

- Electric Dynamo 1893
- Ford Model T 1908
- Acklam Ironworks 1924
- Standard Oil

Giants of Demand Side Economies of scale

- Desktop OS
- Mobile
- Online Books
- Online Video
- Merchant Ventures
- Social Networks
- YouTube
- Facebook
Economies of Scale

Supply Econ of Scale

- Falling average costs
- Monopoly production
- Utilities, Semiconductors

Demand Econ of Scale

- Rising average value
- Monopoly consumption
- IM, Social Networks

$1B+ Platforms by Region

North America has more platform firms, as measured by market cap, than anywhere else in the world. China, with a large homogeneous market, is growing fast. Europe, with a more fragmented market, has less than ¼ the value of North America and is not far ahead of developing regions.

Source: P. Evans, CGE; CB Insights, Capital IQ, Crunchbase, 2015
In any market with network effects, the focus of attention must shift from inside to outside the firm.

**Reason**: You can’t *scale* network effects inside as easily as outside.

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**What Changes :: Marketing**

Businesses shift from outbound messaging to inbound servicing
Four Decades of Consumer Marketing

1980’s
- Single Message

1990’s
- Segmentation

2000’s
- Individual Targeting

2010’s
- Virality / Social Influence

Source: Rob Cain, CIO Coca Cola Company

Four Decades of Consumer Marketing

1980’s
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PUSH / OUTBOUND  PULL / INBOUND
Warby Parker Try Five

Users get 5 styles at home, post to social networks to get votes on best look, keep the one(s) they like. Users to the marketing to growth networks

What Changes :: Human Resources

Emphasis shifts from employees to contractors, from internal experts to external crowds, and from subordinate dictation to community persuasion
Can outsource even middle management

Firms are accessing “cloud labor” at the team and individual level

Gatekeepers replaced by crowds

Advice from travelers over travel agents
Advice from laymen & lawyers over lawyers on retainer
Work from freelance crowds over staff
What Changes :: Operations & Logistics

Value creation shifts from internal to external servicing

Value creation inside versus outside
Value creation inside versus outside

STEP 1
STEP 2
STEP 3
STEP ...
STEP N

Value creation inside versus outside

SUPPLY

DEMAND

PLATFORM
Business Models Can Overlap
Platforms Scale More than Pipes

Dell  
Coca Cola  

Apple  
Samsung  

Airbnb  
Uber

Founded in 2008, Airbnb operates at global scale:  
1M+ listings, 34,000 cities, 180 countries

Paris  
40,000 listings

Berlin  
8,105 listings

Sydney  
5,692 listings

Identify spare capacity, scale across boundaries

Source: http://tomslee.net/airbnb-data, 2016

Courtesy Peter Evans © 2016
``In 2015, 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, and Airbnb the world’s largest hotelier owns no real estate.”

Tom Goodwin, Sr. VP of Strategy Havas Media

What Changes :: Finance

Corporate valuation models that underestimate market expansion due to network effects fail to invest

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mva@bu.edu, @InfoEcon on Twitter, PlatformEconomics.org
• Estimate global taxi market
• Estimate market share
• Est. risk adjusted cash flow
• Consider proprietary methods, barriers to competition

• **Value: $5.9 Billion**

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Aswath Damodaran: NYU Finance professor, Corporate Valuation author, Herb Simon Prize.

Bill Gurley: Venture Capitalist, OpenTable, Zillow, Uber

• All true but overlooking network effects.
• Prices declining responding to rental car market and car replacement market and delivery market.
• Oh, BTW, already 3x size in 2009 when Uber started.

• **Value: $17 Billion**

Source: David Sacks, COO PayPal, CEO Yammer
Instagram sold for $1B not because of contributions from 13 employees but from 30 million users.
What Changes :: R&D and Innovation
Platforms Open Themselves to Third Party Contributions

A platform is a system that can be... adapted to countless needs and niches that the platform’s original developers could not possibly have contemplated...”

Mark Andreessen: Venture Capitalist, Netscape Founder, Board HP, eBay
It’s Working when Users do Something You Didn’t Expect

Ford Model T  Racecar
Flour Mill  Hay Carrier

Mobile Church  Snowmobile
Sawmill  Goat Carrier

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Does Openness Work?

"We tried to create every feature in the world and said, 'O.K., we can do it, why should we let a third party do it?'" says (MySpace cofounder) DeWolfe.

"We should have picked 5 to 10 key features that we totally focused on and let other people innovate on everything else."

The Rise & Ignominious Fall of MySpace – Business Week 2011
Consider product innovation alone
Harnessing 3rd party resources, innovation occurs at a higher combined rate
Even if a platform starts behind, its value overtakes the product leader
Shed costs, keep 30% gains!

What Changes :: Information Technology
IT Support Shifts from Inside to Outside the Firm
IT Support Becomes Increasingly Outward Focused

ERP
Back-Office Systems

Inventory tracking, Restocking, Statistical Process Control, Product Planning, Human Resources, Workflow Management…

CRM
Front-Office Systems

Lead Tracking, Taking orders, Point of Sale Terminals, Price Quotes, Customer Support, Returns, Marketing Campaign Mgmt…

Social Media
Out-of-Office Systems

Community Building, Sentiment Analysis, Inbound Traffic Management, Content Scheduling, SEO Optimization, Media Monitoring…

Bezos Platform Mandate

1. All teams will expose their data…
2. Teams must communicate through interfaces.
3. … no other form of interprocess communication allowed
4. Interfaces, without exception, must be externalizable.
5. Anyone who doesn’t do this will be fired.

Source: Yegge Rant
Who is Getting More 3rd Party Value Add?

API Mashups: Amazon vs. Other Major Retail Enterprises

Amazon growth over 10 years 2491% vs. Walmart (48%), Target (23%), Macy's (-12%), Best Buy (-31%)

Logistics & supply chain squeezing have limits. External value add is much less limited.
Firms experience significant net income gains after API adoption

Log net income grouped by adoption date

Source: Benzell, Lagarda, Van Alstyne (2016) "The Role of APIs in the Firm Performance" using Apigee data

AI Programs Globally

Source: Peter Evans KPMG

Data ➔ AI ➔ Better Offerings ➔ Data …
What Changes :: Strategy

Goal shifts from control, entry barriers, and differentiation to more valuable market exchanges.

Only 7 Firms Controlled 99% of Handset Profits in 2007

- Economies of Scale
- Famous Brands
- Regulatory Protection
- World Class Logistics
- Global Sales Channels
- ≥ $40B twenty yr R&D by Nokia alone

Source: Asymco

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In 6 years, all but one had ≤ 0 profit while 1 newcomer had 92%

Is it likely all 7 incumbents had failed strategies, run by clueless management, lacking execution capabilities?

Or was something more fundamental happening?

Porter’s Five Forces & Resource Based View

1. Goal is a protected market niche, emphasizing industry barriers
2. Categories are sharp
3. Weapon is cost leadership or product differentiation
4. Inimitable resources you own provide sustained advantage
5. Core competence: focus what you do best

Source: Business Insider
Insight: Henry Tirri, former CTO Nokia
1. Goal is interactions that yield NW effects - partner to partner value. NW effects provide sustainability

2. Boundaries can be altered as consumers can be producers
Platform Strategy Differs

1. Goal is interactions that yield NW effects - partner to partner value. NW effects provide sustainability
2. Boundaries can be altered
3. Competition is multi-layered, more like 3D chess.

<table>
<thead>
<tr>
<th>Product</th>
<th>Platform</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distinct: Buyers, Suppliers, Substitutes, Entrants, Rivals</td>
<td>Overlap: Consumers ~ producers, competitors ~ complementors</td>
</tr>
<tr>
<td>Core Competencies</td>
<td>Core Interactions</td>
</tr>
<tr>
<td>Supply Side</td>
<td>Demand Side</td>
</tr>
<tr>
<td>Own Inimitable Resources</td>
<td>Community as Asset</td>
</tr>
<tr>
<td>Cost Leadership / Product Differentiation</td>
<td>Engagement, Positive Spillovers, Just Governance</td>
</tr>
<tr>
<td>Barriers to Entry, Boulevards for Exit</td>
<td>Permissionless Entry, Open Around Key Control Points</td>
</tr>
<tr>
<td>By Firm</td>
<td>By Firm and Ecosystem</td>
</tr>
<tr>
<td>Goal / Metric</td>
<td>Innovation</td>
</tr>
<tr>
<td>Focus</td>
<td>Access</td>
</tr>
<tr>
<td>Market Forces</td>
<td>Scale Economies</td>
</tr>
<tr>
<td>Access</td>
<td>Core Interactions</td>
</tr>
</tbody>
</table>
Network Effects & Inverting the Firm Changes...

- **Human Resources**
  - Internal Employees → External communities
- **R&D**
  - Experts & Specialized departments → Crowdsourcing & Open Innovation
- **Finance**
  - Records outside firm, Shareholder Value → Stakeholder Value, Incorporate network effects
- **Strategy**
  - Entry Barriers & Inimitable Resources → Permissionless Entry & 3rd Party Resources
- **Marketing**
  - Push → Pull, Outbound → Inbound
- **IT**
  - Back Office (ERP) → Front Office (CRM) → Out-of-Office (Social & Big Data)
- **Operations & Logistics**
  - Uber: biggest taxi company, no taxis,
  - Airbnb (biggest accommodations but no real estate), Facebook (biggest media firm but creates no content), Alibaba (biggest merchant but has no inventory)

What’s Next?
Car as Platform

Block Chain & Finance as Platform
City as Platform

Internet of Things as Platform
Energy/Smart Grid as Platform

Architecture and BIM as Platform
Education as Platform

Healthcare as Platform
• Demand economies of scale (i.e. network effects) are creating giant new firms. These represent the opposite side of the profit equation from supply economies of scale.
• These platform firms beat product firms – faster innovation, value proportional to use.
• Information and community are critical resources.
• Network effects invert the firm. They cannot scale inside as easily as outside.
• Inverting the firm affects all value creating activities: marketing, human resources, IT, finance, operations, R&D, strategy.
THANK YOU

QUESTIONS & DISCUSSION

mva@bu.edu
Twitter: @InfoEcon

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