Chapter 2
Network Effects: The Power of the Platform
Platform Revolution: Making Networked Markets Work for You

Geoffrey Parker
Dartmouth College
@g2parker

Marshall Van Alstyne
Boston University
@InfoEcon

Questrom School of Business

with Sangeet Choudary
Platform Labs
@sanguit

2016 Parker & Van Alstyne with Choudary – licensed under Creative Commons Attribution-ShareAlike 4.0 Int'l (CC BY-SA 4.0).
Platform Revolution: Chapter 2 – Network Effects

1. Introduction: Welcome to Platform World
2. Network Effects: The Power of the Platform
3. Architecture: Basic Principles for Designing Successful Platforms
4. Disruption: How Platforms Conquer & Transform Traditional Industries
5. Launch: Chicken or Egg? 8 Ways To Launch Successful Platforms
6. Monetization: Capturing the Value Created by Network Effects
7. Openness: Defining What Platform Users/Partners Can & Cannot Do
8. Governance: Policies That Increase Value and Enhance Growth
10. Strategy: How Platforms Change Competition
11. Policy: How Platforms Should (and Should Not) Be Regulated
12. Future: Industries Facing Imminent Change

Click on left hand icons to access content (downloaded slides).

(order on Amazon)
A PLATFORM:

• Is a nexus of rules and architecture
• Is open, allowing regulated participation
• Actively promotes (positive) interactions among different partners in a multi-sided market
• Scales much faster than a pipeline business because it does not necessarily bear the costs of external production.

Source: Platform Revolution 2016 Parker & Van Alstyne, with Choudary – licensed under Creative Commons Attribution-ShareAlike 4.0 International (CC BY-SA 4.0).
PLATFORMS LEVERAGE NETWORK EFFECTS

More users = more value = more users ...

2 phones
1 interaction

5 phones
10 interactions

12 phones
66 interactions

Source: Wikipedia.org
IT HELPS TO BREAK EACH INTERACTION INTO 2 SIDES

Phone Callers
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

Phone Callees
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

This helps explain how attraction and feedback happen
Types of Network Effects

**Explicit**
- Connectivity
- Ratings & User Generated Content

**Implicit**
- Magnetism
- Recommender Systems
Distinctive Challenges

- Businesses can be *very complex*
- Rapid growth may *preclude trial-and-error*
- Network effects = *winner often takes most/all*
  - **Successes:** Windows, Adobe, iPod/iPhone, Alibaba, LinkedIn, Facebook, etc.
  - **Failures:** Betamax, IBM OS/2, Amazon auctions, eBay Japan, MusicNet, N-Gage, Blackberry, etc.
Demand vs Supply-Side Scale Economies

- Network effects are **demand-side** scale economies. Rising network effects increase existing and prospective users’ willingness-to-pay (willingness-to-participate).

- **Supply-side** scale economies are realized when firms reduce unit costs by leveraging fixed costs or experience effects. With high fixed costs and low unit costs, average costs decline with volume.

- Many businesses that exhibit network effects also enjoy strong supply-side scale economies.

- However, demand-side and supply-side economies are conceptually distinct: *unit cost reductions that result from network growth should not be labeled network effects.*
STANDARD GOODS

- Rising average costs
- Competitive supply
- Soda, Eggs, Bread
SUPPLY ECONOMY OF SCALE

- Falling average costs
- Monopolistic supply
- Utilities, Semiconductors
GIANTS OF SUPPLY SIDE ECONOMIES OF SCALE

Electric Dynamo 1893

Ford Model T 1908

Acklam Ironworks 1924
Vanderbilt Colossus of (Rail) Roads

Standard Oil 1909
DEMAND ECONOMY OF SCALE

- Value grows with volume
- Monopolistic Demand
- Often falling average cost
- Operating Systems, Instant Messaging, Social Networks
GIANTS OF DEMAND SIDE ECONOMIES OF SCALE

Windows OS

Merchant Mkts

Mobile

Social Networks
TRADITIONAL LINEAR VALUE CHAIN

Stage 1 → Stage 2 → Stage 3

Value accumulates from stage to stage
Minimal Network Effects

$  $  $
APPLE iPOD PRE-PLATFORM

(1) Product First Thinking
(2) Standard linear value chain
(3) User bought music retail (or P2P)
(4) Minimal network effects
APPLE iPOD COMBINED WITH iTUNES (AND APPLE MUSIC!)

Apple iPod → Listener → Retailer → Music Producer

$ → $ → $
(1) Triangular platform supply network
(2) Apple owns financial chokepoint
(3) Apple helps users find content
(4) Stronger network effects
A TWO-SIDED NETWORK HAS FOUR NETWORK EFFECTS

- A *same-side* effect for each side, i.e., preference regarding number of other users on own side
- A *cross-side* effect in each direction, i.e., preference regarding number of users on other side

A TWO-SIDED NETWORK HAS FOUR NETWORK EFFECTS. THESE CAN BE POSITIVE OR NEGATIVE.

+ **same-side**: Player-to-player contact in Xbox MMOG, end-user PDF sharing.

+ **cross-side**: merchants & consumers for Visa, developers & end-users for Windows

- **same-side**: competing suppliers in Covisint auction, competing dates on Match.com

- **cross-side**: Digital Rights Management costs to consumers. Advertising clutter to viewers.

You must manage *all* such interactions


2016 Parker & Van Alstyne, with Choudary – licensed under Creative Commons Attribution-ShareAlike 4.0 International (CC BY-SA 4.0).
DAVID SACK’S (COO PAYPAL, CEO YAMMER) SKETCH SHOWS HOW POSITIVE FEEDBACK DROVE UBER GROWTH

- Lower prices
- Less driver downtime
- Faster pickups
- More demand
- More drivers
- More geographic coverage, saturation

Source: David Sacks

2016 Parker & Van Alstyne, with Choudary – licensed under Creative Commons Attribution-ShareAlike 4.0 International (CC BY-SA 4.0).
ALL POSITIVE FEEDBACK LOOPS MEET NEGATIVE FEEDBACK LOOPS (ELSE THEY EXPLODE). MAKE SURE YOU FIND THEM AND MITIGATE THEM.

Source: Adapted from David Sacks 2016, Parker & Van Alstyne, with Choudary – licensed under Creative Commons Attribution-ShareAlike 4.0 International (CC BY-SA 4.0).
HOMING AND SWITCHING COSTS

Mono-homing
1 SETUP + 1 ONGOING
Mobile Handsets

Switching
2 SETUPS + 1 TERMINATION + 1 ONGOING
Xbox
Xbox-PS4

Multi-homing
2 SETUPS + 2 ONGOING
Credit Card
Netflix/Hulu

WHEN DO WINNER-TAKE-ALL MARKETS EMERGE?

1. Large Supply/Demand Effects (Utilities & Facebook vs Consulting). Costs fall or value rises with volume.
2. Large Multi-Homing Costs (OS vs credit cards). Consumers tend to choose just one
3. Niche specialization is low (geographically unrestricted courses vs geographically restricted courses). Differentiation creates protected markets not swamped by scale economies.

TO PRICE A PLATFORM WITH NETWORK EFFECTS, WHO GETS THE SUBSIDY?

Answer: The side that is the stronger attractant (or that creates more value)

The Story of Acrobat Reader/Writer

Adobe first tried to sell PDF readers and writers but no one wanted to buy readers when there was no content to read. And, no one wanted to buy writers when no one had readers. Adobe broke the logjam by giving PDF readers away.

Adobe Acrobat: SUBSIDIZE CONSUMERS

Making PDF readers free dramatically increased the value of PDF writers, shifting producer demand out and to the right. Here, Adobe subsidized consumers. Profit lost on one side of market is more than made up by profit gain on other side of market.

Source: Parker & Van Alstyne, 2000. "Information Complements, Substitutes and Strategic Product Design"
Operating Systems: Subsidize Developers

Making System Development Toolkits (SDKs) free dramatically increased the value of operating systems, shifting consumer demand out and to the right. Here, Microsoft subsidized producers. Profit lost on one side of market is more than made up by profit gain on other side.
WHEN DOES FREE MAKE SENSE?

1) People understand the razors & blades strategy
(same as cellphones & minutes, printers & ink)
   Give away one thing, charge for another
   The SAME person gets both items

2) People often misunderstand 2-sided network pricing
   Subsidize one party in order to attract then charge another party
   Subsidy side and money side of the market are DIFFERENT parties
   (like women & men on ladies’ nights)

3) Monetization is trickier for 2-sided networks
   Charging the wrong side (or both) reduces growth and network effects
Q: Why is price more important in network markets?
A: The entire demand curve can change with price.

Q: Why is price more strategic in 2-sided networks?
A: Imagine competing on the subsidy side – you need a source of subsidy at least as great.
# TAKEAWAYS FROM CHAPTER TWO

Network effects are the main source of value creation and competitive advantage in a platform business—and, increasingly, in today’s economy.

Whereas giant industrial-era firms were made possible by supply economies of scale, today’s giants are made possible by demand economies of scale—expressed as network effects.

Network effects are *not* the same as price effects, brand effects, or other familiar growth-building tools.

Frictionless entry and other features of scalability maximize the value-building impact of network effects.

A two-sided market (with both producers and consumers) gives rise to four kinds of network effects: same-side effects (consumer-to-consumer, producer-to-producer) and cross-side effects (consumer-to-producer, producer-to-consumer). Polarity on any of these can also be positive or negative. A growing platform business must manage all four.

The key to minimizing most negative network effects is quality curation and minimizing congestion, which increases the chances of a happy match between producer and consumer.

Winner Take All Markets (monopolies) tend to emerge from (1) large demand/supply economies of scale (2) large multihoming costs (3) more homogeneous / less niche markets.

Source: Platform Revolution

---

2018  Parker & Van Alstyne, with Choudary – licensed under Creative Commons Attribution-ShareAlike 4.0 International (CC BY-SA 4.0).
Platform Revolution: Next Chapter 3 – Architecture

1. Introduction: Welcome to Platform World
2. Network Effects: The Power of the Platform
3. Architecture: Basic Principles for Designing Successful Platforms
4. Disruption: How Platforms Conquer & Transform Traditional Industries
5. Launch: Chicken or Egg? 8 Ways To Launch Successful Platforms
6. Monetization: Capturing the Value Created by Network Effects
7. Openness: Defining What Platform Users/Partners Can & Cannot Do
8. Governance: Policies That Increase Value and Enhance Growth
10. Strategy: How Platforms Change Competition
11. Policy: How Platforms Should (and Should Not) Be Regulated
12. Future: Industries Facing Imminent Change

Click on left hand icons to access content (downloaded slides).
For More Chapter 2 Information
Suggested background: MBA Readings


Click on left hand icons to access content (downloaded slides).

Geoffrey Parker
@g2parker

Marshall Van Alstyne
@InfoEcon

with Sangeet Choudary
@sanguit

(click to order on Amazon)
For More Chapter 2 Information
Suggested background: PhD Readings


Click on left hand icons to access content (downloaded slides).

Geoffrey Parker @g2parker
Marshall Van Alstyne @InfoEcon
with Sangeet Choudary @sanguit

(click to order on Amazon)