INFO5992 Week 6 Cheatsheet

Distributed Innovation III: User Innovation & Platform Ecosystems

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PART 1: USER INNOVATION

Definition

User Innovation: Users and consumers innovate more on new products than suppliers - Products by manufacturers typically meet needs of a *wide range* of people - When particular users have needs *not yet felt by most consumers*, they modify products themselves - Often leads to new companies, especially in IT

Key Theorist: Eric von Hippel (MIT)

Traditional "Producer Innovation" Model

- Producer makes products/services for consumers
- Design comes from producer companies
- Producer profits from many users of same product
- Producers can afford more R&D investment than single users
- Innovation protected through patents

LEAD USERS

Characteristics (von Hippel, 1986)

1. **Face needs months/years BEFORE the general market** realizes them
2. **Benefit significantly** from obtaining a solution
3. **Spend resources** trying to solve those needs
4. At the **leading edge of trends**, very knowledgeable about "state of the art"

Important Note

- Lead users are NOT usually a company's "lead customers"
- They're typically **dissatisfied with current products**
- They've had to create their own solutions

Lead Users vs Typical Users

Typical Users: - Suffer from "functional fixedness" (cognitive bias limiting use to traditional ways) - Not effective for high-tech/IT industries - Good for some categories (cleaning, food products)

Lead Users: - More effective for innovation - May be individuals, companies, or communities

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USER INNOVATION EXAMPLES

IT Examples

1. **World Wide Web** - Created by researcher for scientists to communicate
2. **Firefox Add-ons** - Developers create plugins for own use, then share
3. **Apache Server Modules** - Originally by web server administrator
4. **Open-source Software** - Much is user innovation (but not all)

Statistics

- ~80% of important scientific instrument innovations by users
- Many sports product innovations by users
- Many science innovations by users

Case Study: Geni → Yammer

- **Geni**: Genealogy platform
- **Problem**: Needed internal communication tool
- **Solution**: Built Yammer for own use (30 employees, 20k messages)
- **Result**: Spun out as separate company, Microsoft bought for $1.2B (2012)
- **Now**: Used by 200,000+ companies

Case Study: Slack

Timeline: 1. Game Neverending (failed) → Built Flickr using the technology 2. Yahoo acquired Flickr (2005) 3. Glitch game (failed again) 4. Built team communication tool for coordinating work 5. Realized tool could help other teams 6. Slack launched → IPO 2019, valuation >$20B

Case Study: MySQL

- Started wanting to use mSQL database
- mSQL not fast/flexible enough
- Created new SQL interface with similar API to mSQL
- API designed so mSQL code could port easily
- Named after co-founder's daughter (My)
- Sun Microsystems bought for $1B (2008)

MAKER MOVEMENT

Definition

"Umbrella term for independent inventors, designers and tinkerers"

Key Components

- **Make Magazine** - First published 2005, "bible" for makers
- **Maker Faire** - "Greatest Show on Earth" for makers
  - First: San Francisco Bay Area 2006
  - 2016: 200 faires worldwide, 100k+ attendance

Impact on Innovation

- IT innovation → simple to start (APIs, open source, cloud)
- Physical building → becoming easier (3D printers, Raspberry Pi)
- Tremendous interest in recent years

ALTERNATIVE PERSPECTIVE ON USER INNOVATION

Criticisms

1. **Can't predict future demand** - Users don't know if they'll like breakthrough products
2. **Misses disruptive innovations** - Focus on users leads to incremental, expensive, complicated innovations
3. **Leads to sameness** - User insights widely available, not competitive advantage

Apple's Approach (Steve Jobs)

"We figure out what we want. We're pretty good at having the right discipline to think through whether a lot of other people are going to want it too." - Apple makes products they want to use themselves - They are their own leading-edge customers

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PART 2: PLATFORM ECOSYSTEMS

Platform Business Definition

Businesses that **bring together producers and consumers** in high-value exchanges - Chief assets: **information and interactions** - Source of value: **information and interactions** - Source of competitive advantage: **information and interactions**

PLATFORM ECOSYSTEM PLAYERS

The Four Main Roles

1. **PRODUCERS**
   - Creators of platform's offerings
   - Example: App developers on Android
2. **CONSUMERS**
   - Buyers or users of offerings
   - Example: App users
3. **PROVIDERS**
   - Interfaces for the platform
   - Example: Mobile devices on Android
4. **OWNER**
   - Controls platform IP
   - Arbiters of who participates and how
   - Example: Google owns Android

Note: Players may shift rapidly from one role to another

PIPELINES VS PLATFORMS

Pipeline Business

- Take in resources
- Add value
- Release higher-value products
- Linear value creation
- Centrally employed staff, owned assets

Platform Business

- Create value by controlling interactions
- Between producers and consumers
- Orchestrate interactions between external parties

Can Be Both

Examples: Amazon, Apple

PLATFORM STRATEGY SHIFTS

From Pipelines to Platforms

1. **Resource Control → Resource Orchestration**
   - Main asset: Network of producers and consumers
2. **Internal Optimization → External Interaction**
   - Focus: Facilitating network interactions
3. **Customer Value → Ecosystem Value**
   - Focus: Total value of expanding network

MEASURING PLATFORM BUSINESSES

Key Metrics

1. **Interaction Failure**
   - Failed interactions between producers/consumers
2. **Engagement**
   - Level of participation enhancing network effects
3. **Match Quality**
   - Quality of producer-consumer interactions
4. **Negative Network Effects**
   - Over-supply or over-demand issues

TYPES OF PLATFORM BUSINESSES

1. Integrator Platform

- Example: Apple iPhone app architecture
- External innovators → Platform → Customers
- High control by platform

2. Product Platform

- Example: Intel x86 Architecture
- Platform → External Innovators → Customers
- High control by platform

3. Two-Sided Platform

- Example: Airbnb (property owners ↔ travelers)
- Platform connects External Innovators ↔ Customers
- High autonomy of external parties

COMMON PLATFORM TYPES (Deloitte, 2015)

1. Aggregation Platforms

- Facilitate transactions
- Connect users to resources
- Hub-and-spoke model
- **Examples**: eBay, Etsy, App Store, Airbnb, Kaggle

2. Social Platforms

- Facilitate social interactions
- Connect individuals to communities
- Mesh relationship networks
- **Examples**: Facebook, Twitter

3. Mobilization Platforms

- Facilitate mobilization
- Move people to act together
- Foster long-term relationships for shared goals
- **Examples**: Linux, Apache

PLATFORM VALUE AREAS

1. Search

- Help users find products, services, participants
- Filters, algorithms, recommendations

2. Trust

- Reputation systems
- Ratings and reviews
- Verification systems
- Secure messaging

3. Financial Transactions

- Secure payment processing
- Escrow services
- Transaction management

4. Physical/Digital Delivery

- Logistics management
- Order tracking
- Digital downloads/streaming

PLATFORM MONETIZATION STRATEGIES

Direct Revenue

1. **Sales Commission** - % of each transaction
2. **Subscription Fees** - Regular access fees (e.g., Prime)
3. **Transaction-Based** - Per-use charges
4. **Listing Fees** - Charges to post offerings
5. **Fulfillment Fees** - Logistics services

Indirect Revenue

1. **Advertising** - Promoted listings, display ads
2. **Data Monetization** - Analytics, insights, trends
3. **Sponsorships** - Featured placements
4. **Recommendation Algorithms** - Using user data

CASE STUDY: APPLE iPHONE PLATFORM

The Disruption (2007-2015)

- **2007**: Nokia, Samsung, Motorola, Sony Ericsson, LG = 90% global profits
- **2015**: iPhone alone = 92% global profits
- Former incumbents made no profit (except Samsung)

Platform Strategy

- iPhone + iOS as more than product/service
- Designed to connect two-sided market:
  - **One side**: App developers
  - **Other side**: App users
- Value increases as participants grow (**network effects**)

Results

- **January 2025**: 1.92 million apps available
- **2022**: $1.1 trillion in total billings/sales in App Store ecosystem

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CASE STUDY: ONLINE GAMING PLATFORMS

League of Legends (Riot Games, 2009)

- Strategy: Build a platform, not just a game
- **67 million players/month**
- **$1B annual revenue** (2009), **$1.75B (2020)**
- Free to play, monetize via:
  - Character skins
  - Game boosters
  - Live events/e-sports
  - Broadcasting rights
  - Advertisement
  - Sponsorships
  - Coaching services

Fortnite (Epic Games)

- Similar platform model
- Creator Economy 2.0
- Unreal Editor for Fortnite
- User-generated content platform

Platform Value Chain

1. **Platform provides** governance and standards
2. **Attracts players** (consumers)
3. **Attracts content creators** (producers)
4. **Network effects** increase value
5. **Multiple monetization** streams
6. **Media industry** emergence (streaming, e-sports)

E-Sports Growth

- **Fastest-growing** part of sports industry
- **Twitch/YouTube** major platforms
- **Professional players** earning millions
- **Example**: Ninja made ~$10M in 2018 from Fortnite

INDUSTRIES TRANSFORMED BY PLATFORMS

Platform businesses are transforming many sectors:

Industry	Examples
Agriculture	John Deere, Intuit Fasal
Communication & Networking	LinkedIn, Facebook, Twitter, Tinder, Instagram, Snapchat, WeChat
Consumer Goods	Philips, McCormick Foods FlavorPrint
Education	Udemy, Skillshare, Coursera, edX, Duolingo
Energy & Heavy Industry	Nest, Tesla Powerwall, General Electric, EnerNOC
Finance	Bitcoin, Lending Club, Kickstarter
Health Care	Cohealo, SimplyInsured, Kaiser Permanente
Gaming	Xbox, Nintendo, PlayStation
Labor & Professional Services	Upwork, Fiverr, 99designs, Sittercity, LegalZoom
Local Services	Yelp, Foursquare, Groupon, Angie’s List
Logistics & Delivery	Munchery, Foodpanda, Haier Group
Media	Medium, Viki, YouTube, Wikipedia, Huffington Post, Kindle Publishing
Operating Systems	iOS, Android, MacOS, Microsoft Windows
Retail	Amazon, Alibaba, Walgreens, Burberry, Shopkick

Transportation	Uber, Waze, BlaBlaCar, GrabTaxi, Ola Cabs
Travel	Airbnb, TripAdvisor

KEY STATISTICS & INSIGHTS

Global Platform Economy

- **30%+ of global economic activity** (~$60 trillion) could be mediated by digital platforms by 2031 (McKinsey)
- **Only 3%** of established companies have effective platform strategy
- **7 of 10** most valuable companies globally use platform model
- **First mover advantage** important (winner often takes all)

Platform Success Factors

1. Network effects
2. Quality of ecosystem governance
3. Effective monetization strategy
4. Match quality between producers/consumers
5. Managing negative network effects
6. Platform engagement levels

EXAM-RELEVANT CONCEPTS

Distributed Innovation Approaches (Week 4-6)

A. Product platforms B. Web APIs C. Crowdsourcing innovation / Crowdfunding D. Open data E. Free and Open Source Software F. **User innovation** ← Week 6 G. **Platform ecosystems** ← Week 6 H. Accelerators, investment

Key Distinctions to Know

User Innovation vs Open Innovation: - User innovation: Users create for themselves, may share - Open innovation: Companies deliberately seek external ideas

Lead Users vs Typical Users: - Lead users: Ahead of market, willing to invest, not satisfied - Typical users: Follow trends, functional fixedness

Pipelines vs Platforms: - Pipelines: Linear, control resources, owned assets - Platforms: Network effects, orchestrate interactions, external value

Direct vs Indirect Monetization: - Direct: Transaction fees, subscriptions, commissions - Indirect: Advertising, data, sponsorships

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RECOMMENDED READINGS

1. **Von Hippel (1986)** - “Lead Users: A Source of Novel Product Concepts”
2. **Van Alstyne, Parker & Choudary (2016)** - “Pipelines, Platforms, and the New Rules of Strategy” (HBR)

3. **Baldwin & von Hippel (2011)** - Modeling paradigm shift
4. **Parker, Van Alstyne & Choudary** - Platform Revolution (Book)

TUTORIAL FOCUS AREAS

When Analyzing a Platform, Consider:

1. **Value Areas**
   - Search capabilities
   - Trust mechanisms
   - Financial transaction handling
   - Physical/Digital delivery
2. **Ecosystem Players**
   - Who are the producers?
   - Who are the consumers?
   - Who provides the platform?
   - Who owns the platform?
3. **Monetization**
   - Direct revenue streams
   - Indirect revenue streams
   - Multiple monetization methods

Platform Type Classification

- Aggregation (transactions, hub-and-spoke)
- Social (interactions, mesh networks)
- Mobilization (collective action, shared goals)

COMMON EXAM QUESTIONS PATTERNS

1. **Define and explain** user innovation with examples
2. **Identify lead users** and explain their characteristics
3. **Compare and contrast** pipelines vs platforms
4. **Analyze a platform** business model
5. **Identify ecosystem players** in a given scenario
6. **Explain monetization strategies** for platforms
7. **Discuss network effects** and their importance
8. **Apply concepts** to case studies (Apple, gaming, Airbnb, etc.)

QUICK REFERENCE: PLATFORM EXAMPLES

Platform	Type	Producers	Consumers
Airbnb	Peer-to-Peer	Hosts	Guests
Amazon	Marketplace	Sellers	Buyers
Uber Eats	Sales/Services	Restaurants	Customers

YouTube	Peer-to-Peer	Content Creators	Viewers
Apple App Store	Marketplace	Developers	App Users
LinkedIn	Peer-to-Peer/Social	Professionals	Recruiters/Professionals

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FINAL TIPS

✓ **Understand the shift** from producer to user innovation
✓ **Know the characteristics** of lead users
✓ **Be able to identify** platform ecosystem players
✓ **Understand network effects** and their importance
✓ **Know multiple examples** for each concept
✓ **Practice analyzing** real platforms using the framework
✓ **Understand monetization** strategies (direct & indirect)
✓ **Connect to previous weeks**: How platforms relate to open innovation, APIs, crowdsourcing

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Good luck with your studies!