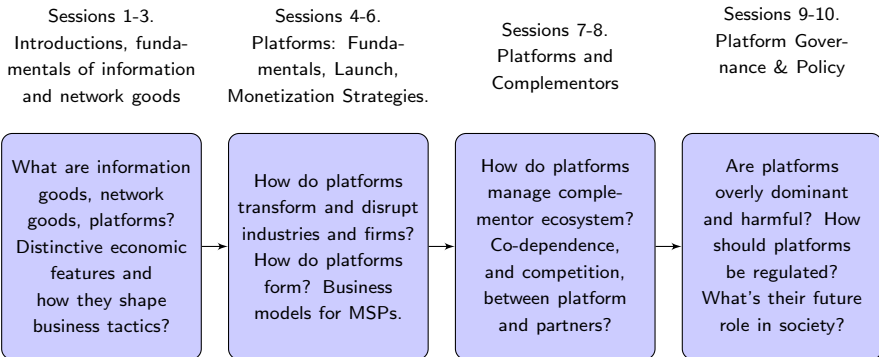


# Syllabus: **MGx450: Technology Competition and Strategy, Winter quarter (Jan-Mar)**

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(Revised 11/12/2024)



- MGT (Davis) class meets Monday 1:10-5 pm starting Jan 6. (Make-up sessions for MLK Day and Presidents' Day will be via Zoom on Tuesday in the evenings, jointly with MGP/B 450 section)
- MGB/P (Bay Area/Sacramento) class meets Tuesday 5:30-9 pm starting Jan 7 on Zoom

**A pre-course assessment worth 10% (= 5% + 5%) of the grade will be made available by Dec. 20, and must be completed (on Canvas) by Jan 12.**

## MGx450. Course Overview and Objectives

- Exponential progress in information technology components, for many decades, has caused business transformations at the individual, unit, firm and then cross-firm levels – and most recently (as the focus of the course) at the industry, market and economy levels.
- This course gives you a **framework for thinking about technology competition and strategy**, and about a business revolution that we are in the middle of, a **platform revolution**. Platform-enabled marketplaces, and other Internet-based goods and products with digital components and network effects, produce over half the revenue for over half of the world's 100 largest companies (e.g., Apple, Facebook, Amazon, Google, American Express, Time Warner). Technology entrepreneurship is commonplace. But this class of goods has very different, almost weird, characteristics, with **distinctive economic forces** that affect **supply** (e.g., supply and cost structures), **demand** (e.g., how value is created) and **markets** (e.g., industry organization, alliances, and competition). Managing and responding to these forces requires distinctive competitive strategies. Conversely, strategic errors can be devastating. **What** are these forces? How do they **impact market outcomes** in technology industries? And **how should firms shape their competitive strategy**?
- The insights from this course are most relevant to **information and technology goods** (hardware, software, online information goods, Internet and telecommunications services, consumer electronics, entertainment and media products) and **other industries that have digitization and network effects**, such as health care, banking, services, biotechnology, transportation and energy. The course employs a mix of simple but rigorous analytical models, emerging theories, and plenty of real-world examples, cases and experiences.

# Application Project

All students (in groups) will conduct a “digital platform business” project to apply the ideas, concepts and methods from MGx 450 onto a concrete platform business problem. The proposed business should be impactful, successful, and financially sustainable. You will cover product design, launch, data policy, pricing, network mobilization, costs etc.

## Hypothetical vs Slightly-Real Project

- A hypothetical project would analyze and produce tactics and set goals - eg certain features would bring in 1000 users paying \$10 a month. At the end, you have powerpoint slides and claims and a plan. In the absence of a real “system” or infrastructure means there is no real test, you can claim anything.
- In a “mildly real” project you would i) enroll participants on both sides, ii) create services for them that they value - such as search, discovery, matching, post-matching support, etc. - which cause them to join, and iii) enable transactions between participants of the same or other side, and so on. All this requires implementing some infrastructure (even it is rudimentary).

In both cases, you might get far along (as past groups have) to take this forward beyond the class, and build something real. However, it is more likely to occur if you start with some implementation, because that will test the reality of your ideas.

## Learning objectives and Session Plan

- Startup, + Introductions – Getting to know each other, course, workload, syllabus overview. [40 min]
- Context of technology goods (= information goods, network goods, platforms), digital revolution, digital economy [40 min]
- How are information goods transformational and disruptive? Why do they require distinctive competitive strategy and create notable market outcomes? Ex. 1–2–3 [60 min]
- Housekeeping (Groups, Project, Syllabus details), + Questions and next steps [40 min]

## Readings

- Varian; “High Technology Industries and Market Structure”.
- Barefoot et al.; “Research Spotlight Measuring the Digital Economy”
- Goldfarb and Tucker; “Digital economics”
- **Optional:** Cusumano; “Platforms Versus Products: Observations from the Literature and History” (pp. 35–63). [https://www.emerald.com/insight/content/doi/10.1108/S0742-3322\(2012\)000029006/full/html](https://www.emerald.com/insight/content/doi/10.1108/S0742-3322(2012)000029006/full/html)

## Learning objectives and Session Plan

- Startup + Session overview [15 min]
- Ex. 4. What are (different types of) network effects? How do network goods create value, how do firms leverage network effects, and how to model this value? Ex. 5 [60 min]
- Why do network goods require distinctive competitive strategy and create notable market outcomes? How do network effects influence **adoption** decisions, **market demand**, and competitive strategy? When are they most relevant, [70 min]
- Questions and Next steps [15 min]

## Readings

- Eisenmann; "Platform-Mediated Networks: Definitions and Core Concepts". [p. 1-8 (Networks) and Appendix B-C]
- Bhargava; "Platform technologies and network goods: insights on product launch and management".
- **Optional:** Duncan Gilchrist, *A dummy's guide to network effects*, July 2016 ([online](#))
- **Optional:** *Engineering Optimal Network Effects via Social Media Features and Seeding*

## Learning objectives and Session Plan

- Quiz1 + session overview [20 min]
- Monetization challenges and tactics in dealing with **heterogeneous consumers**: Product and price **differentiation**, segmentation, versioning and bundling (for durables); **one-time vs recurring revenues** for **consumables**, ex. 7 [55 min]
- Adapting tactics for information and network goods - *Square* case (Ex. 15) [75 min]
- Project status (Ex. 18) + next steps [20 min]

## Readings

- Bhargava and Gangwar; "Pricing Strategy for Service Start-ups: How to Employ Access and Usage Fee?"
- Needleman; "From 'Call of Duty: Black Ops Cold War' to 'Fortnite,' Here's How Videogame Pricing Works"
- Bhargava; "Monetization Tactics for Information and Network Goods".
- **Case discussion**: Markovich et al.; "Hip to be Square: Disruption in the U.S. Mobile Payment Market".

## Learning objectives and Session Plan

- Startup + Session overview [15 min]
- What is the essence of platforms? How are they transformational and disruptive? Ex. 8. [60 min]
- What are the key building blocks of platforms? What's the platform's value and core purpose (Ex. 19), and how to manage and leverage network effects? [30 min]
- Network mobilization, monetization, and coordination: key challenges in succeeding with a platform strategy? Mini-case: EVs as platforms (Tesla vs rest). [50 min]
- Project status and next steps [15 min]

## Readings

- Eisenmann; "Platform-Mediated Networks: Definitions and Core Concepts". [p. 8-23 (Platforms and Appendix A)]
- Van Alstyne, Parker, and Choudary; "Pipelines, platforms, and the new rules of strategy".
- Hagiu; "Strategic Decisions for Multisided Platforms"
- Anderson et al.; "Electric Vehicles Are a Platform Business: What Firms Need to Know".
- Sangeet Paul Choudary, "The Core Interaction: What Platforms and Marketplaces can Learn from Super Mario Bros", 2018. ([online](#))

# Creating a platform business: How and When?

## Learning objectives

- Startup + Session overview [15 min]
- Platform OR product? When to be (or not to be) a platform business? Ex. 9 [40 min]
- Building a platform business - how do MSPs form? how do they mobilize multiple sides? [50 min]
- **Intuit** case discussion (Ex. 16) [55 min]
- Project status (Ex. 20) and next steps [20 min]

## Readings

- Edelman; "How to Launch Your Digital Platform: A Playbook for Strategists."
- Eisenmann and Hagiu; "Staging Two-Sided Platforms"
- Zhu and Furr; "Products to Platforms: Making the Leap".
- Hagiu and Altman; "Intuit QuickBooks: From Product to Platform".
- Read the **Amazon story (Forbes)**. ([online](#))
- Steve Jobs on iPhone openness, <https://youtu.be/pqrCk7gpTsA> ([online](#))



## Learning objectives

- Quiz 2 + Startup [50 min]
- Challenges for successful platforms (why do many fail? Ex. 11) and business model strategies (Ex. 10, [The Paypal experience](#)) [75 min]
- Project status (ex. 21) and next steps [50 min]

## Readings

- Van Alstyne, Parker, and Choudary; “6 Reasons Platforms Fail” .
- Eisenmann, Parker, and Alstyne; “Strategies for Two-Sided Markets”
- Bhargava; “Monetization Tactics for Information and Network Goods” .
- [Paypal history](#) ([online](#))

## Learning objectives

- Quiz 3 and Startup [25 min],
- Ecosystem strategy and co-dependence between platform and complementors: Building platform power and how to manage (and motivate, and possibly compete against) communities and complementors? Apple vs Microsoft (Ex. 12) Project Ex. 22 [65 min]
- Case discussion: **WeChat** and Tencent (Ex. 17), Platform scope and envelopment, creating platform defense and lock-in [75 min]
- next steps [15 min]

## Readings

- Reeves et al.; “How Business Ecosystems Rise (and Often Fall)”.
- Yoffie and Kwak; “With friends like these: The art of managing complementors.”
- Birkinshaw, Ke, and Diego; “Innovation and agility at Tencent’s WeChat”.
- **WeChat's Ascendancy** ([online](#))

## Optional Content

- Hemant K. Bhargava (2016), **AT&T — Time Warner Deal Confirms Walled Gardens Future of Entertainment**.
- Hemant K. Bhargava (2018), **What's Next in the Disney-Netflix Streaming Battle?**

## learning objectives and session plan

- Startup + Session overview [15 min]
- understanding platform ecosystem scale and design [30 min]; vertical integration and market disruption, and revenue sharing [30 min]
- Building and growing a platform, managing communities
- Drivers/predictors of winner-take-all markets (in-class exercise) [20 min]
- Project status (Ex. 23) + next steps [25 min]

## Readings

- Bhargava; “The creator economy: Managing ecosystem supply, revenue sharing, and platform design”.
- Zhu; “Friends or foes? Examining platform owners’ entry into complementors’ spaces”.  
(video: iPad and Kindle, Friends or Foes?)
- Eisenmann; “Winner-Take-All in Networked Markets”.

## learning objectives and session plan

- Quiz 4 + session startup [50 min]
- Harmful outcomes arising from digital platforms [50 min]
- Issues and challenges in platform regulation: How should platforms be regulated, and is the classic lens (abuse of monopoly power against competitors or against consumers) effective and appropriate? [50 min]
- Project status (24) + next steps [20 min]

## Readings

- Zeng, Danaher, and Smith; "Internet Governance Through Site Shutdowns: The Impact of Shutting Down Two Major Commercial Sex Advertising Sites."
- Kif Leswing, [House antitrust subcommittee: Apple has 'monopoly power'](#), Oct. 2020. ([online](#))
- [App Store and Google are monopolies](#)
- Hemant K. Bhargava, [Google antitrust case suggests Apple should be in the Department of Justice's crosshairs too](#), The Conversation, Oct. 2020.
- Bhargava, Evans, and Mani; "The Move to Smart Mobile and Its Implications for Antitrust Analysis of Online Markets". ([online](#))

# The Future, and Wrap-Up.

## Learning objectives

- Session startup and Online course evaluations [30 min]
- Platform project presentation and discussion (Ex. 25) [120 min]
- Course Wrap-up: Take-aways (Ex. 6), and Future of Platforms. [30 min]

## Readings

- Cusumano, Yoffie, and Gawer; “The Future of Platforms”.

Optional Calvano and Polo; “Market power, competition and innovation in digital markets: A survey”

# Readings I

- [1] Hal R. Varian. "High Technology Industries and Market Structure". *Federal Reserve Bank of Kansas City Proceedings* (2001). URL: <https://people.ischool.berkeley.edu/~hal/Papers/structure.pdf>.
- [2] Kevin Barefoot et al. "Research Spotlight Measuring the Digital Economy". *Survey of Current Business* 99.5.13 (2019).
- [3] Avi Goldfarb and Catherine Tucker. "Digital economics". *Journal of Economic Literature* 57.1 (2019), pp. 3–43.
- [4] Michael A Cusumano. "Platforms Versus Products: Observations from the Literature and History". *History and Strategy*. Ed. by J Kahl Steven, S Silverman Brian, and A Cusumano Michael. Vol. 29. *Advances in Strategic Management*. Emerald Group Publishing Limited, Jan. 2012, pp. 35–67. URL: <https://ebookcentral.proquest.com/lib/ucdavis/reader.action?docID=1019355&ppg=58>.
- [5] Thomas Eisenmann. "Platform-Mediated Networks: Definitions and Core Concepts". *Harvard Business School* (2007).
- [6] Hemant K. Bhargava. "Platform technologies and network goods: insights on product launch and management". *Information Technology and Management* (2014).
- [7] Hemant K. Bhargava and Manish Gangwar. "Pricing Strategy for Service Start-ups: How to Employ Access and Usage Fee?" *Forbes India* (2017). URL: <http://www.forbesindia.com/article/isb/pricing-strategy-for-service-startups-how-to-employ-access-and-usage-fee/48097/1>.

## Readings II

- [8] Sarah E. Needleman. “From ‘Call of Duty: Black Ops Cold War’ to ‘Fortnite,’ Here’s How Videogame Pricing Works”. (Sept. 2020). URL: <https://search.proquest.com/newspapers/videogame-pricing-gets-more-complex/docview/2439556183/se-2?accountid=14505>.
- [9] Hemant K. Bhargava. “Monetization Tactics for Information and Network Goods”. *working paper* (2021).
- [10] Sarit Markovich et al. “Hip to be Square: Disruption in the U.S. Mobile Payment Market”. *Harvard Business School* (Feb. 2014).
- [11] Marshall W Van Alstyne, Geoffrey G Parker, and Sangeet Paul Choudary. “Pipelines, platforms, and the new rules of strategy”. *Harvard business review* 94.4 (2016), pp. 54–62. URL: [https://www.nonprofitjourney.org/uploads/8/4/4/9/8449980/pipelines\\_-\\_platforms\\_\\_and\\_the\\_new\\_rules\\_of\\_strategy.pdf](https://www.nonprofitjourney.org/uploads/8/4/4/9/8449980/pipelines_-_platforms__and_the_new_rules_of_strategy.pdf).
- [12] Andrei Hagiu. “Strategic Decisions for Multisided Platforms”. *MIT Sloan Management Review* (Jan. 2014). URL: <https://sloanreview.mit.edu/article/strategic-decisions-for-multisided-platforms/>.
- [13] Edward G Anderson et al. “Electric Vehicles Are a Platform Business: What Firms Need to Know”. *California Management Review* 64.4 (2022), pp. 135–154.
- [14] Daniel Edelman. “How to Launch Your Digital Platform: A Playbook for Strategists.”. *HBS Blog* 93 (4 Apr. 2015). URL: <https://hbr.org/2015/04/how-to-launch-your-digital-platform>.

## Readings III

- [15] Thomas Eisenmann and Andrei Hagiu. “Staging Two-Sided Platforms”. *Harvard Business School* (2007).
- [16] Feng Zhu and Nathan Furr. “Products to Platforms: Making the Leap”. *Harvard Business Review* 94 (4 Apr. 2016). URL: <https://web.p.ebscohost.com/ehost/results?vid=0&sid=83df5492-44a7-4fdb-a2af-8be98f6cb3dc%40redis&bquery=%28S0%2B%28Harvard%2Bbusiness%2Breview.%29%29AND%28DT%2B2016%29AND%28TI%2B%2522products%2Bto%2Bplatforms%2522%29&bdata=JmRiPWJ0aCZ0eXB1PTEmc2VhcmNoTW9kZT1TdGFuZGFyZCZzaXRlPWVob3N0LWxpdmU%3d>.
- [17] Andrei Hagiu and Elizabeth J. Altman. “Intuit QuickBooks: From Product to Platform”. *Harvard Business School* (Dec. 2013).
- [18] Marshall W Van Alstyne, Geoffrey G Parker, and Sangeet Paul Choudary. “6 Reasons Platforms Fail”. *Harvard Business Review* 31.6 (2016), pp. 2–6. URL: <https://search.ebscohost.com/login.aspx?direct=true&db=bth&AN=118685972&site=ehost-live>.
- [19] Thomas Eisenmann, Geoffrey Parker, and Marshall van Alstyne. “Strategies for Two-Sided Markets”. *Harvard Business Review* (Oct. 2006). URL: <https://search.ebscohost.com/login.aspx?direct=true&db=bth&AN=22316862&site=ehost-live>.
- [20] Martin Reeves et al. “How Business Ecosystems Rise (and Often Fall)”. *MIT Sloan Management Review* 60.4 (2019), pp. 1–6. URL: <https://sloanreview.mit.edu/article/how-business-ecosystems-rise-and-often-fall/>.



## Readings IV

- [21] David B Yoffie and Mary Kwak. "With friends like these: The art of managing complementors.". *Harvard business review* 84.9 (2006), pp. 88–98. URL: <https://web.p.ebscohost.com/ehost/pdfviewer/pdfviewer?vid=1&sid=1fc00f7a-61e3-46e7-b6f0-25f6e4c56ee4%40redis>.
- [22] Julian Birkinshaw, Dickie Liang-Hong Ke, and Enrique de Diego. "Innovation and agility at Tencent's WeChat". *London Business School* (Aug. 2019).
- [23] Hemant K Bhargava. "The creator economy: Managing ecosystem supply, revenue sharing, and platform design". *Management Science* 68.7 (2022), pp. 5233–5251.
- [24] Feng Zhu. "Friends or foes? Examining platform owners' entry into complementors' spaces". *Journal of Economics & Management Strategy* 28.1 (2019), pp. 23–28. DOI: <https://doi.org/10.1111/jems.12303>. eprint: <https://onlinelibrary.wiley.com/doi/pdf/10.1111/jems.12303>. URL: <https://onlinelibrary.wiley.com/doi/abs/10.1111/jems.12303>.
- [25] Thomas Eisenmann. "Winner-Take-All in Networked Markets". *Harvard Business School* (2007).
- [26] Helen Shuxuan Zeng, Brett Danaher, and Michael D. Smith. "Internet Governance Through Site Shutdowns: The Impact of Shutting Down Two Major Commercial Sex Advertising Sites.". *Management Science* 11.68 (2022). <https://pubsonline.informs.org/doi/10.1287/mnsc.2022.4498>, pp. 8234–8248.

## Readings V

- [27] Hemant K Bhargava, David S Evans, and Deepa Mani. “The Move to Smart Mobile and Its Implications for Antitrust Analysis of Online Markets”. *Business Law Journal* (Jan. 2016). URL: <https://blj.ucdavis.edu/archives/vol-16-no-2/BLJ-16.2-Bhargava-Evans-Mani.pdf>.
- [28] Michael A Cusumano, David B Yoffie, and Annabelle Gawer. “The Future of Platforms”. *MIT Sloan Management Review* 61.3 (2020), pp. 46–54. URL: <https://sloanreview.mit.edu/article/the-future-of-platforms/>.
- [29] Emilio Calvano and Michele Polo. “Market power, competition and innovation in digital markets: A survey”. *Information Economics and Policy* 54 (2021), p. 100853.

# Exercises I

## Individual Effort

1. Pick a “traditional” product (e.g., bicycle, wooden toy, prosthetics, paint, car, prescription eyeglasses, leaf blower, shoes, ski jacket, furniture, etc.) - and a corresponding specific brand and company that makes it.
  - 1.1 State, about 25-50 words, the essence of this business ... what is its purpose, how does it achieve it?
  - 1.2 Why might the firm want to do all this at large scale, and what must it do to operate at large scale?
  - 1.3 What are some pitfalls in scaling up?

## Solution (1pt)

*to make profit ... by making something (create value) that customers pay for ... and where there is positive tradable surplus (value - cost), so it becomes possible for them to get positive consumer surplus (value - price) and you get positive profit (price-cost).*

*building the business (and scale up) by investing in resources (and hire people, firms, markets) ... implies fixed costs, sunk costs; goal to bring variable costs down. process view of firm: firm refines and optimizes – repeat, better and faster and cheaper.*

*risks and challenges and pitfalls - process optimization can lead to stable output (although some variation due to production failures; accidents) - but demand is unstable - mismatch against demand; price pressures. challenges: heterogeneity, incomplete information, uncertainty.*

*This Q was to motivate discussion. Above are some thoughts, but basically any reasonable effort is full points.*

## Exercises II

2. Take the product you chose in Ex. 1. Identify,



- 2.1 which panel (a / b / c) best captures how “unit cost” (comprising production, marketing, distribution and other activities) changes with scale or number of units?
- 2.2 which panel (a / b / c) best captures the unit cost of fixing defective units (e.g., product recall) or upgrading them?
- 2.3 which panel (a / b / c) best captures how unit cost varies with the “quality” level of the product, or the utility it provides to buyers.
- 2.4 which panel (a / b / c) best captures how unit cost varies with “product variety” - e.g., compare unit cost if making 1000 units of the same product vs 10 units each of 100 variations of it.

## Exercises III

### Solution

1) *per-unit cost (i.e., (fixed costs +  $N \times$  variable costs) divided by  $N$ ) should be mostly flat with scale (b), and possibly even (a) if you had very high initial development cost - but usually not (c). for a physical good.*

2) *same for defective units: each unit has about the same cost of fixing as the previous one. (b) or (a).*

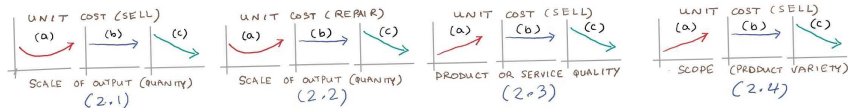
3) *higher quality usually implies higher cost (c).*

4) *more variety increases the per-unit cost. so (a).*

*Some room for alternative answers, if well explained, and if those fit the example good chosen.*

*But otherwise, the above.*

3. Now pick a specific brand/product that is a “digital” or information good (movie, book, software app, operating system, streaming service, game, information service, search engine, research report, etc.). Similarly identify



- 3.1 which panel (a / b / c) best captures how “unit cost” (comprising production, marketing, distribution and other activities) changes with scale or number of units?
- 3.2 which panel (a / b / c) best captures the unit cost of fixing defective units (e.g., product recall) or upgrading them?

## Exercises IV

- 3.3 which panel (a / b /c) best captures how unit cost varies with the “quality” level of the product, or the utility it provides to buyers.
- 3.4 which panel (a / b /c) best captures how unit cost varies with “product variety” - e.g., compare unit cost if making 1000 units of the same product vs 10 units each of 100 variations of it.

### Solution

*For a digital good, (1) = c, (2) = c, (3) = often (b), (4) = (b). See lecture notes S1.*

4. **Product value analysis:** Pick a common product (like in Ex. 1 - and a specific brand/item to make the analysis concrete). As a consumer (think what this product is worth to you):
- ▶ what factors affect how much you value the product?
  - ▶ who in the industry chain controls or decides these factors and quality levels?
  - ▶ generally, how does the product quality (i.e., its worth to you) change over time and with use?

Repeat with one of: Waze, YouTube, SnapChat, Tik Tok, Amazon, iPhone+iOS+AppStore (or, Android-Play Store), Airbnb, Uber.

### Solution

*Again, see lecture notes S1 (search “wrench”). For traditional goods, some technical features of product affect value; those are decided by manufacturer and its partners; and value drops over time. Again here the contrast is with network goods – where value now depends on the network and users and what other users do; hence NOT controlled just by the firm; and usually increases over time.*

## Exercises V

5. For each company/product in EACH of the two lists below (pick as many companies as group members), identify any standalone benefit or intrinsic value in the product. Then, if there are direct and/or cross-sided network effects, a) explain which kind, b) what is the network(s) that define the network benefit, c) how the network contributes to value, and d) what the platform or company can do in order to amplify the network benefit. List 1: Nextdoor, Atlassian, eBay, Salesforce, iOS, Stack Overflow, American Well, Zelle, Netflix. List 2: Venmo, PatientsLikeMe, Lime (or Bird), Slack, Substack, Spotify, Android. Be precise in answering, and provide your short responses in the form of a table like below.

Company, Standalone Benefit	Type of Network Benefit	The Network(s)	How the network enables value	How to intensify it
Dropbox (a place to store files)	Direct	Users	Sharing files among users	Good search capabilities, good UI for setting sharing privileges, file editing Good authentication and access methods
	Cross-side	(Users, Connected Tools)	Seamless import/export from external tools (eg PDF writer) into Dropbox	
...				

## Solution (3in)

*I can help with grading? Mainly I wanted students to become familiar with these products and examples, so I can freely use them in class. Second I wanted them to think about what it means to have direct or indirect n.e., and to do that they must be able to answer: what is the network (who all are in the network)? what makes the network create value for the participant?*

## 6. Course Summary and Wrap-up:

- ▶ What are your top 3-5 learnings or insights from this class?
- ▶ Was there something you found difficult to follow? Or, did anything impede your learning?
- ▶ List 1-3 students who contributed the most to your learnings through their contributions in class discussions.



# Exercises VII

## Group Homework Assignments

7. **Monetization tactics:** Using one or more company as an example (Ford, Ikea, Kraft Foods, Boeing), explain how they use each of these tactics to better monetize the market they serve, i.e., to extract higher prices from buyers: a) bundling, b) vertical product differentiation (versioning), c) horizontal product versioning, and d) recurring revenues.
8. **Business analysis for a platform good:** Consider a platform good (such as a video on TikTok or YouTube, a place to rent on Airbnb, a ride on Uber, traffic information on Waze, an app on App Store or Play Store, a news feed on Facebook, etc.) - and think also of a counterpart traditional product (e.g., a show on HBO, a room at a hotel, a taxi ride) or even a product from Ex. 1. **For both of these: make a graph where the businesses involved in this product (and the customer) are nodes, and the “connections” depict business relationships between nodes.**  
As an example: if I picked a “wrench”, then my answers might be: a) \$15, b) grip, reliability, versatility, c) manufacturer, d) wrench designer + (Raw materials suppliers → Steel makers, grip makers) → manufacturer → distributor → retailer → me. Materials or value flows from left to right, payment flows from right to left.
9. **Platform Misfits:** From your independent research and analysis, identify two industry domains where the idea of multi-sided platforms (value creation by loosely affiliated external 3rd party providers) is unlikely to work, and (if possible) give examples where it was tried and failed.

## Exercises VIII

10. **Business Models:** Pick 4 companies (from at least 3 groups below), and summarize: their key product/service, who are their users/customers, and how they make money.  
1) Whatsapp, PatientsLikeMe, Match.com, 2) Doordash, Atlassian, Spotify, 3) OpenTable, Kyruus, TikTok, 4) CreditKarma, Armoire (<https://unlimited.armoire.style/>), Fortnite, 5) Overleaf, Amwell, Clash of Clans, 6) FramePlay, LinkedIn, Substack.
11. **Platform failures** From your own research (i.e., not from assigned readings) identify 3 notable failures of new platform businesses, and the essential reason underlying the failure in each case. Submit your work as a 2-3 minute video.
12. **Apple vs Microsoft Platforms (Mini-Case):** Compare - highlight the critical differences or similarities in - the *Apple and Microsoft approaches* to competing in the personal computing market (break your answer roughly into 2 parts,  $\approx$  1980-2000, 2000-2015). Discuss, among other things, the two firms' success (or failure) in leveraging network effects, their choices in dealing with "ecosystem partners," and their choices to be "open vs closed," systems. Include a visual comparison of the financials of the two companies, in the two time periods.
13. DROPPED
14. **Platform power:** Identify the top 10 firms in terms of "market capitalization" now, and 10 and 20 years ago (find and use a suitable source, see e.g., [https://en.wikipedia.org/wiki/List\\_of\\_public\\_corporations\\_by\\_market\\_capitalization](https://en.wikipedia.org/wiki/List_of_public_corporations_by_market_capitalization)). Classify these firms by industry sector (e.g., telecom, banking, oil and gas, computers). Present this data in a compelling and clear visual manner, ideally which demonstrates the changes across these 20 years. What explains the timing of the dominance of platform firms?

# Exercises IX

**Case Preparation and Analysis** Although all teams should read the case and think through the questions in Background and Analysis (and any student can be name-called in class), your written submission should cover only the exercises corresponding to your team assignment (2 teams will do part (A), 2 teams part (B), and 2 teams will do part (C)). Use bullet points, graphics, etc. to enhance the clarity and precision of your responses (vs long paragraphs). Make sure every word matters. Gibberish, gobbledygook and obfuscation will earn negative points. For part (C) - the Jeopardy activity - each team could prepare 3 categories. Collaborate so you're prepared to execute the Jeopardy session, so learn the technology and the systems ahead of time.

## 15. Square

**(A) Square** (Case Background ... submit at least one answer as a well-prepared engaging video)

- (1).A.1 Summarize the (financial payments) industry that Square entered in 2009 – the players, products (and costs), customer segments, and how they monetized them.
- (2).A.2 Draw a timeline of Square's evolution from 2009 onwards (what products were introduced, when), and visualize Square's business performance in terms of users, activity, revenue, etc.
- (3).A.3 For each of Square's major products since 2009 to now: identify (a) the market segment(s) Square targeted (include numbers such as size and revenue potential), (b) its competitors, and (c) how Square's product was different and innovative relative to prevailing competition.

**(B) Square: Case Analysis**

# Exercises X

- (1).B.1 (3-4 slides plus supporting analyses) Square Reader market: Do a quantitative analysis to critique Square's pricing (\$0 for card; the \$0.15 per-transaction fixed fee; and the 2.75% rate). The goal is to examine: why these levels? what happens if you increase one and reduce the other?
- Profits from Reader:** Suppose that if Square sold the reader (which costs \$10 per unit) at price  $s$ , it would attract  $B = Me^{-as}$  merchants (assuming they find the usage terms also attractive), where  $a = 0.1$  and  $M = 10$  million is the potential target market. What is the optimal  $s$  to maximize Reader profits?
- Profits from Transactions:** Think of how Square might optimize the per-transaction fee (call it  $p$  per \$ run through the reader; e.g., \$0.03). To do this, suppose that if the number of merchants with the Square Reader is  $B$ , then a subset  $Be^{-bp}$  (with  $b = 200$ ) would use it. What is the optimal value of  $p$  to maximize Square's profit? Assume an average (annual) transaction volume  $T = \$2,000,000$  per merchant, and that Square's average back-end costs are  $c = \$0.02$  per \$ of transaction.
- Total Profits from Reader + Transactions:** What would  $s$  be if you factor in the market for transactions?
- (2).B.2 (1-2 slides) As a newcomer in 2009 in an established market, where incumbents served certain segments and were a poorer fit for other segments: (a) analyze which segments Square should target with their product (explain pros and cons); and (b) given this choice and Square's pricing strategy, critique how Square created success (market share, profit) without eliciting a harsh competitive response or price war.
- (3).B.3 Pricing with data monetization (1 slide)  
If Square could monetize merchant data (i.e., earn \$  $v$  per merchant) how would it affect pricing of the Reader and other products? Consider the likely Square user base, the nature of heterogeneity among users, the fixed and variable costs to Square, Square's existing competitors (their products, prices, and target segments), customer acquisition, retention, lock-in, and value of data.
- (4).B.4 Critique the pricing of Square Cash (1 slide): \$0 up to \$2,500 per week; 2.75% rate for larger business accounts.
- (5).B.5 Network effects (1-2 slides)  
Which of Square's products have substantial network effects? Explain what types of network effects? what are the sides? in what way does the network create value for a user? How should the existence of network effects affect Square's pricing strategy?

# Exercises XI

## (C) Square: Case Jeopardy

Prepare a set of rapid-fire questions (from the case) for the class to answer (8-10 minutes activity). Create suitable categories (e.g., Financials, Timeline, Products, People ...), and aim to cover (at least) the questions laid out in the Background exercises (A) for the case, and one question from Analysis (B).

## 16. Intuit

### (A) Intuit (Case Background ... submit at least one answer as a well-prepared engaging video.)

- (1).A.1 Summarize Intuit's journey as a software provider (of Quicken, Quickbooks) - its customer segments, strengths in serving them, and level of financial success and growth rate.
- (2).A.2 What new business opportunities did Intuit's software products enable, i.e., what new value propositions could Intuit offer its customers on top of the data and transactions in its software products?
- (3).A.3 Develop a timeline comprising Intuit's evolution from a software product company to its later forms (including as an MSP) - cover its products, target markets, and financial success.

### (B) Intuit: Case Analysis

- (1).B.1 (1-2 slides) What mechanisms or initiatives represent Intuit's transition from a software product company to a MSP? In each case, what are the networks and network effects Intuit created? What part of the Quickbook/Intuit business system was opened, what services did it offer network participants, and what were the technological elements underlying these services?
- (2).B.2 (2 slides) Evaluate the strategic merits of alternative business models for this transition (i.e., be an open marketplace, vs a limited curated marketplace, vs reseller) - do this separately for i) QBF and ii) Concierge.
- (3).B.3 (1-2 slides) How and where should Intuit draw the boundaries between being a "product provider" vs a "platform"? For instance, what sort of platform-level data should Intuit leverage solely vs. share with 3rd party providers? What new business services should Intuit keep to itself? Answer in terms of specific products/services, as well as general principles for making this choice.

## Exercises XII

- (4).B.4 (2 slides) Was it smart for Intuit to transition from a “product” model (i.e., leveraging all of its expertise and IP to make and monetize new products on its own) to a multi-sided marketplace platform model (allowing 3rd party providers to use Intuit infrastructure and reach Intuit’s customers) a smart move for Intuit? What are pros and cons, strategic challenges, organizational and decision making culture (e.g., metrics and incentives), underlying these two directions? If possible, consolidate these into a mathematical/economic model (include things such as discovering new ideas, risks in implementing them, likelihood of success or failure of each, costs incurred, direct revenue or commission as platform operator, etc.).

### (C) Intuit: Case Jeopardy

Prepare a set of rapid-fire questions (from the case) for the class to answer (8-10 minutes activity). Create suitable categories (e.g., Financials, Timeline, Products, People ...), and aim to cover (at least) the questions laid out in the Background exercises (A) for the case, and one question from Analysis (B).

## 17. WeChat

### (A) Case Background

- (1).A.1 Develop a timeline comprising WeChat’s evolution - cover its products, target markets, and financial success - and link this to new technologies (introduced and adopted) during this period.
- (2).A.2 What are the different business ventures of WeChat and briefly discuss each of their business models.
- (3).A.3 What are the different sides and network effects of the WeChat open platform?

### (B) Case Analysis

- (1).B.1 (1 slide) A key strategy for WeChat was to branch from messaging to a host of other applications and services. Comment on pros and cons to be a specialist or a wide (and thin) generalist, keeping in mind also future evolution, future outcomes, and competitive response. Relate this to the lack of focus that killed the once-dominant Yahoo!
- (2).B.2 (1 slide) Explain and critique WeChat’s ability to use product design to engender stronger network effects?
- (3).B.3 (1-2 slides) What lessons does WeChat’s history provide you regarding staging and evolution of large-scale platforms? Specifically, address growth, monetization, transformation from one type of network good to another etc., and the wisdom of opening up the platform to external third-party firms.

## Exercises XIII

- (4).B.4 (1-2 slides) Beyond WeChat's early success, critique what contributed to its future continued ascendance: was it the early success, market leadership and large installed base acting as effective barriers to competition? Or was WeChat's continued ascendance more driven by continuous innovation and strategic agility?
- (5).B.5 (1-2 slides) Evaluate the strategic and financial merit of WeChat's potential drive for global dominance. In what ways does WeChat's solid position in the China market help or hurt? What about spreading capital to create growth internationally vs. focusing to grow just in China.

### (C) Case Jeopardy

Prepare a set of rapid-fire questions (from the case) for the class to answer (8-10 minutes activity). Create suitable categories (e.g., Financials, Timeline, Products, People ...), and aim to cover (at least) the questions laid out in the Background exercises (A) for the case, and one question from Analysis (B).

## Exercises XIV

### Platform Project: Milestones and Deliverables

18. **Project Plan:** Develop a platform project idea as discussed in Session 2 (pick something comparable in scope to the examples given). Write a 1-page proposal. Define the platform in terms of the pain points it would address. The proposed business should have potential to be impactful, successful, and financially sustainable. The application work will cover platform definition, and issues of product design, launch, pricing, costs, etc.
19. **Core interaction:** Identify core value unit(s) and interaction(s) for your project, the sides of your platform (who is the consumer/producer? how do they consume/produce? how is quality determined?). Discuss what tools and services the platform should provide to support these sides (creation/consumption/customization, and also discovering, filtering and matching). 1-2 pages, use visuals to explain.
20. **Platform roadmap:** Identify how you would populate the sides of your platform (all in parallel, or in what sequence?). Explain how this maps to the *structure* of the value that your platform offers to its participants. 1-2 pages, based on analysis of the following questions.
  - ▶ What value do platform participants (on each side) obtain from the platform? What time-linked factor does this value depend on?
  - ▶ What cost do participants incur or perceive? (price + “bio-cost”)
  - ▶ What do you offer, such that to a potential adopter, at the time of joining,  $value > cost$ ?
  - ▶ How do you signal relevant network size to a potential adopter?
  - ▶ What other tactics might you employ to get sufficient number of early adopters?
21. **Platform monetization and business models:**
  - ▶ How will your platform make money (exceeding its costs)? What will you charge for? Who will you charge? When will you start charging?



## Exercises XV

- ▶ Are there negative consequences that monetization will have on growth? How will you ensure that the net result is positive?
- ▶ What other alternative business models did you consider? (What are your 2nd and 3rd ranked models?)

22. **Platform community:** From your platform's perspective, what are the communities, and among these are they "givers" or "takers"? For a "giver" community that helps make the platform valuable to its users, what are the challenges in making this community "work for" the platform? What actions or techniques does/should the platform employ to motivate and manage the community? Hint: think about how these platforms do it – Waze, eBay, AWS, Tik Tok, Uber, Airbnb. (1 page write-up, use visual illustration.)
23. **Platform competition:**
- ▶ While building and launching your platform, what are the biggest competitive threats and how will you deal with them?
  - ▶ Will you, and how will you, create lock-in effects within your platform network so that you can fend off competitors, and particularly prevent leakage of the "subsidy" side of your platform?
24. **Platform Project Discussion** You will soon have your final presentation (see Ex. 25). In half a page, describe your progress in laying out different elements of building your platform business. Include a summary of what you did in the previous exercises, identify a few open questions (around the tactics for monetization, mobilization, staging, scaling). Next: put it all together, tie any loose ends.
25. **Platform Presentation** Upload presentation (slides+notes) to Canvas for Professor to preview your presentation plan. Cover these topics (and any others relevant):

## Exercises XVI

- ▶ Summary of platform vision: purpose, sides, core value units and interactions, platform services.
- ▶ Monetization: Who pays? For what? What are prices based on? (Eg fixed amounts? percentage of some metrics etc?) What were alternative ways to monetize and why did you pick what you picked?
- ▶ Network mobilization: How (using what tactics) do you get participants on each side to join? and to engage? (Consider: what value they get, What cost they incur, including non-economic? other barriers to their participation - including lack of awareness and plain old inertia - how do you overcome all these?)
- ▶ Staging: What is the platform build sequence for the multiple sides, and how does the platform structure evolve? (Which side or sides come first, and how do those sides contribute to building out the later sides?)
- ▶ Scaling: What is the scaling up and rollout sequence? (Eg start with all sides locally in some regions, then expand ... or start all across but with fewer sides, then add other sides?)

Ensure consistent economic story (costs incurred, revenues) across the different elements (monetization, mobilization, staging, scaling).

# Class Rules and Support I

- **Class Rules.**

- ▶ inform me asap about any needs that affect your learning experience.
- ▶ review syllabus and session details ahead of session 1, note any questions you have.
- ▶ be in class on time. or early.
- ▶ do all listed pre-class work and submit it ahead of class meeting (due dates on Canvas).
- ▶ never hesitate to ask questions or for help, in class or out (email professor or TA).
- ▶ respect all rules of academic integrity in homeworks, exams, and all around.

- **Plagiarism and Generative AI Tools:** I encourage students to explore the use of generative artificial intelligence (AI) tools, such as ChatGPT, for assignments and assessments. Any such use must be appropriately acknowledged and cited, including the specific version of the tool used and the exact prompt used to generate the content. Because AI generated content is not necessarily accurate or appropriate, it is each student's responsibility to assess the validity and applicability of any generative AI output that is submitted. You may not earn full credit if inaccurate, invalid, or inappropriate information is found in your work. Deviations from these guidelines will be considered violations of **UC Davis's academic integrity policy**. Please email me if you have questions regarding what is permissible and not for a particular course or assignment.

- **Support.** UC Davis provides a **wide range of remote services** such as counseling, tutoring, academic advising, and community building and engagement for its students. If you feel like your performance in class is being impacted by circumstances outside of class, do not hesitate to let me know. I want to help you to the extent possible while meeting the learning objectives for this course.

## Class Rules and Support II

- **Online Classes [if forced into].** My limited experience with Zoom teaching highlights some practices that can help make the best of this difficult, remote-learning, environment: 1) sign in 5 min before class, 2) test your equipment (wifi connection, camera, mic, speakers, etc.), 3) be familiar with Zoom features such as screen-sharing, raising hand, indicating emotions (like, dislike, claps etc.), 4) have your mic off (except when speaking), camera on (so we can have real engagement), 5) be ready for class by doing all assigned prep, and 6) be ready to participate like you would in an in-person class.

# Team Tasks

- To reduce and distribute workload, students will do certain tasks in teams, and different teams will be assigned different tasks as laid out below. The goal is to let each of you pick what you are interested in or might excel at.
- Task groups:

	Square Case	Intuit Case	WeChat Case
Background	2	3	1
Case Analysis	2, 1	1, 3	3, 2
Jeopardy	3	2	1

Group formation will be done within Canvas. Please assign yourself to one of the pre-defined groups (of specific sizes), otherwise a default assignment will be made for you. It is your responsibility to check with group members whether they're committed to staying or likely to drop out.

- A team assignment works only when team members study the entire topic, then discuss and debate to form and describe the team's position. It does not work well if you simply partition the tasks and sub-divide between the team members.

# Student Workload and Grading

Pre-Course Assessment	Individual HW	Group HW	Case Discussion	Class Participation	Quizzes and/or Exam
5%+5%	15%	21%	24%	15%	15%

## Grading Principles

Maintain a B by attending class, listening responsibly, making timely and effort-ful submissions. Shift lower by missing class, being late on assignments, or being disruptive (e.g., being late) or distracting (e.g., using social media). Improve to B+ or A- through high quality on assigned work. Get an A by demonstrating high level of understanding, analysis, and insight.<sup>a</sup>

How to think about grades: [A] A cause for celebration; [B] Be happy, this is pretty commendable; [C] See what happens if you don't follow instructions?; [D] Do you really want to go there?

<sup>a</sup>You can't make up lost grade points for a missed class. To partially make up lost learning: read all notes, slides, do all assignments; then, spend 20 minutes each with 2 students to get their summary; then make a 1-2 page learning summary and share with the professor. In-class "surprise quizzes" will be added to motivate timely attendance. For late assignments : 25% reduction upto 1 day late, otherwise 50% (if submitted before class).

- HW assignments (and Readings) aim to prepare you for class, will be graded on effort.
- Class participation: 0.5 for **punctuality**; 1.5 for **outstanding** contribution; 1 in the middle.
- 4 Quizzes (5 pt each), lowest score will be dropped.
- Individual HW 3 pts each; Group HW 3 pts each; Case prep 8 pts each.

# University Guidelines and Information

**Academic Integrity and Code of Conduct:** All students are governed by the [Univ. of California's standards of ethical conduct for students](#). These sections set forth the responsibilities of students and faculty to maintain a spirit of academic honesty and integrity. You were given this code of conduct with explicit explanations of violations (e.g. plagiarism, cheating, unauthorized collaboration, etc.) and your responsibilities in regard to them during orientation, and you signed a statement affirming that you understand it. It is essential that you are aware of this code of conduct and the disciplinary actions that may be taken in the event of a violation. A copy of the Code of Academic Conduct may be found in your student handbook or at

<https://ossja.ucdavis.edu/code-academic-conduct> or <http://sja.ucdavis.edu/files/cac.pdf>. If you are uncertain about what constitutes an academic conduct violation, please refer to the code linked above, contact your instructor, or refer to the Office of Student Judicial Affairs.

**Principles of Community:** All participants in the course, instructor and students, are expected to follow the UC Davis Principles of Community, which includes affirmation of the right of freedom of expression, and rejection of discrimination. The right to express points-of-view without fear of retaliation or censorship is a cornerstone of academic freedom. A diversity of opinions with respectful disagreement and informed debate enriches learning. However, in this course, any expression or disagreement should adhere to the obligations we have toward each other to build and maintain a climate of mutual respect and caring.

**Statement on Accommodation:** UC Davis is committed to educational equity in the academic setting, and in serving a diverse student body. All students who are interested in learning about how disabilities are accommodated can visit the Student Disability Center (SDC). If you are a student who requires academic accommodations, please contact the SDC directly at [sdcc@ucdavis.edu](mailto:sdcc@ucdavis.edu) or 530-752-3184. If you receive an SDC Letter of Accommodation, submit it to your instructor for each course as soon as possible, at least within the first two weeks of a course.

**Safety and Emergency Preparedness:** UC Davis has many resources to help in case of emergency or crisis. While reviewing campus Emergency Information, you may want to register for UC Davis Warn Me and Aggie Alert, which will give you timely information and instructions about emergencies and situations on campus that affect your safety. If there is an emergency in the classroom or in non-Davis locations, follow the instructions of your instructor.