AI WARS: SUBSTITUTES, COMPLEMENTS, NETWORK EFFECTS, & ECOSYSTEMS

RC STRATEGY

SECTIONS B & C

ASHISH NANDA

FALL 2025

1

Substitutes

- A substitute can replace the focal good in use or consumption
  - Examples: Tea vs. coffee, butter vs. margarine, public transport vs. ride hailing
- In considering substitutes, think broadly – of function and use, not just the form
  - Example: Substitute for power tools (particularly, around holidays)? Neckties!

- **Strategically**:
  It is good for the focal industry
  to have few substitutes (few alternatives), or
  if multiple substitutes exist,
  for the focal industry to attack the substitutes for share of consumption/ use

  It is bad for the focal industry to have a lot of substitutes that are attacking the industry for share of consumption/ use

- (Optional) In economics terminology:
  If Price of substitute falls (rises), demand for focal good should decline (rise)
  Thus, cross price elasticity of demand of substitutes is *positive*

2

Complements

- A complement is used together with the focal good
- Thus, when use of a complement increases, the demand for the focal good also rises
  - Examples: conventional cars and gasoline, printers and ink cartridges, shoes and socks, hot dogs and buns
- Good news: Complements expand the value pie
  Bad news: Complements want their slice of the value pie

- **Strategically**
  If the focal industry has complements
  - Success of the focal industry can depend on the availability, pricing, and quality of the complements
    Examples: Video game platforms and game libraries; mobile operating systems and apps; Wintel in PCs
  - Firms that are present in complementary industries can price strategically
    Examples: Razors and blades, web browsers and search engines
  - Firms with dominant positions in a strong complement can exert bargaining power on focal industry
    Example: Wintel v. Hardware
  - Network effects: Complements fuel innovation

- (Optional): In economics terminology:
  If Price of a complement falls (rises), demand for focal good should increase (decline)
  Thus, cross price elasticity of demand of complements is *negative*

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3

Network Effects

- Network effects arise when customers' willingness to pay for a product increases with the number of other customers who have a compatible product

  - Direct network effects
    - Value of a product increases as overall number of users of the product grows
    - Examples: telephone, premium athletic shoes, social media, messaging apps, multiplayer games

  - Indirect network effects
    - Value of a product increases as the overall number of users for a complement grows
      - Examples: Operating Systems and Apps, Wintel
    - Special case: When demand and supply sides are complements (platform businesses)
      - Examples: Ride sharing, e-Commerce markets, edTech platforms

- **Strategically**: Scale matters for markets with network effects
  - This can tip a market toward winner-take-most dynamics
  - Strategic tools: early entry, building large installed bases, penetration pricing, nurturing an ecosystem of complements

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4

Ecosystems

- Strong complements create ecosystems
  Since complements reinforce each other, customer lock-in increases
  Example: The Apple ecosystem: iPhone, app store, air pods, iCloud, Apple watch

- Complements, if owned by different companies, exhibit coopetition
  They contribute to each other's WTP, but also claim value
  - Examples: Wintel, Networks-iPhones, Phone OSs-Apps developers

- (Optional) Ecosystems with complements can exist as open ecosystems or as walled gardens
  - Walled gardens:
    - Allow shifting of profit pools across complements
      (Examples: Apple Desktop Hardware-Software, iPod-iTunes, iPhone Hardware-OS)
    - Ease introduction of new products
      (Examples: iPad, earbuds, wearables)
  - Open ecosystems:
    - Encourage broad innovation efforts by outside complements
    - Customers feel less locked into specific ecosystems

5