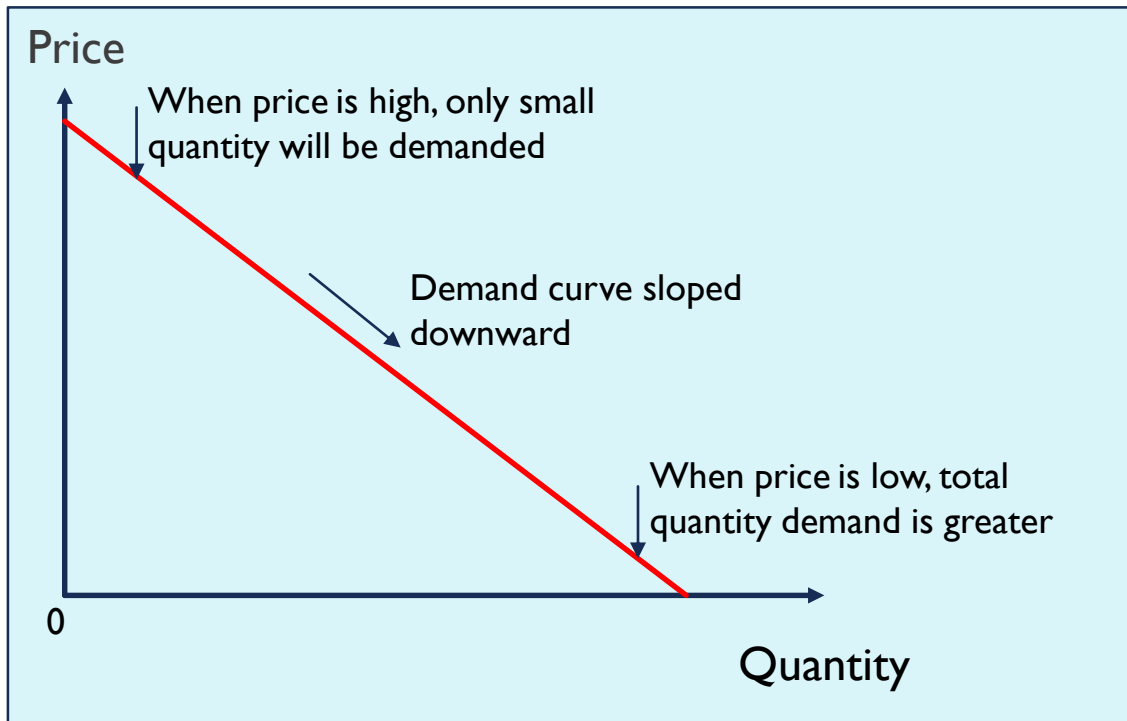# Session 10. Platform economy
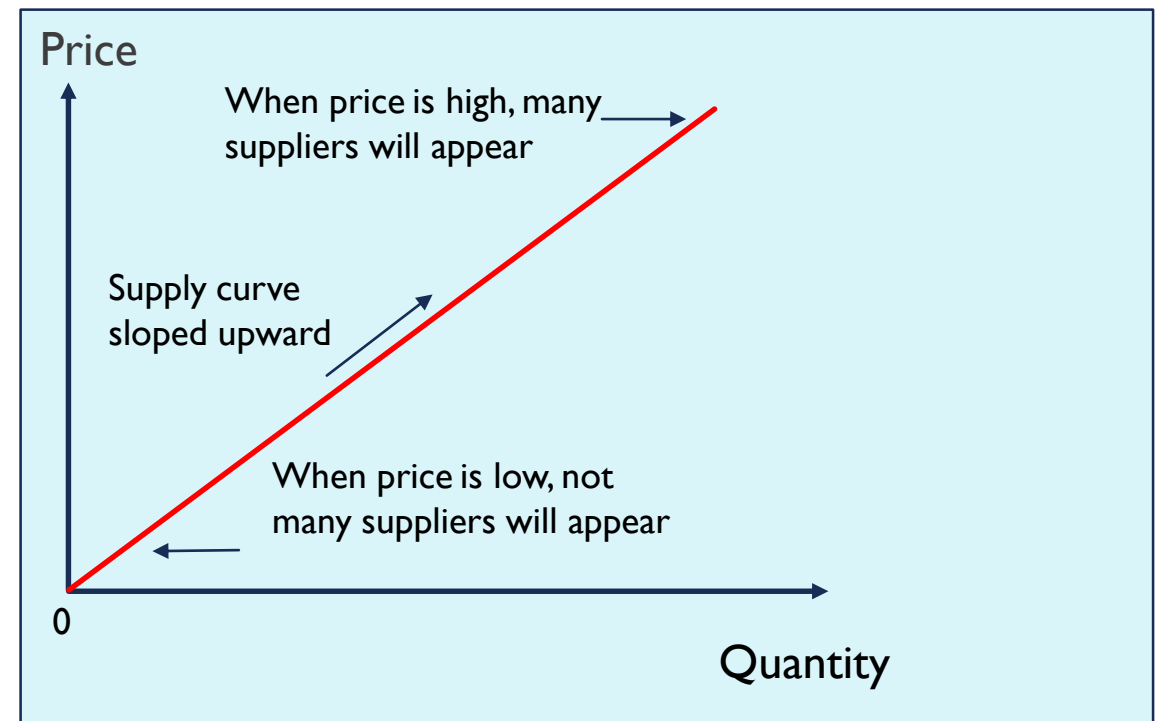
Natalia Milovantseva, PhD, April 13, 2019
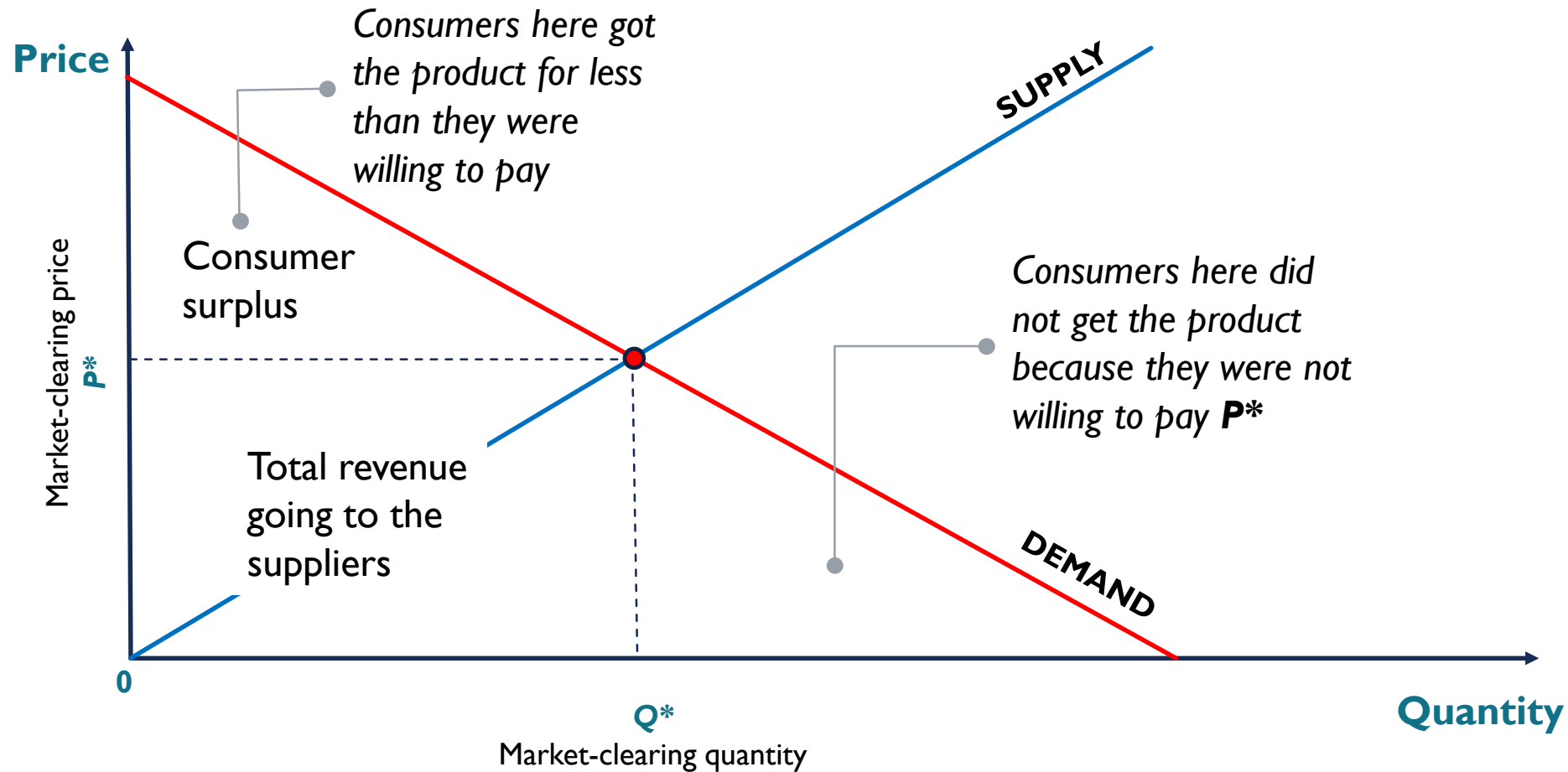
Supply and demand curves

Demand curve: the price as a function of the quantity customers would buy at that price

Supply curve: the price as a function of the quantity that suppliers would supply at that price

Price

When price is high, only small quantity will be demanded

Demand curve sloped downward

When price is low, total quantity demand is greater

0

Quantity

Price

When price is high, many suppliers will appear

Supply curve sloped upward

When price is low, not many suppliers will appear

0

Quantity
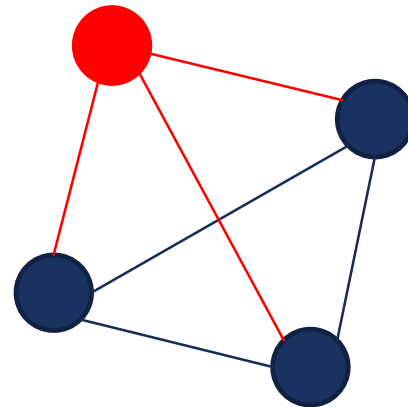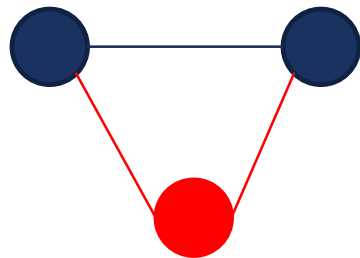
Key features of supply and demand

Complements are important in the digital economy

- Two things are more valuable together than they are separately

- Strict complements: things are completely useless if they're not together

- Cross-elasticity in complements' demand curves

  - price changes in one product induce quantity changes in both products

- Complements' value is **especially high** if one of the complements is a digital good whose price can be **zero** or **near-zero**

Network effects and Metcalfe's law

- Positive externality

- With network effects, the value of a good increases as more people use that good

    - Example: the value of Facebook grows as more and more people use Facebook

- Metcalfe's law: the value of a network grows by the square of the size of the network

    - A network of 10 connected users has value of $10^2 = 100$

Number of connections grows faster than number of people in the network

Network effects and Metcalfe's law

- Vastness of connections in a network significantly increases the value of digital goods

- Because of network effects, companies in the digital economy give away products for free

- Free goods can be a complement, not a substitute, for more expensive versions

  - Example: Dropbox

    - sells cloud data storage, distribution, and file synchronization services

    - gives low-level amount of storage away for free (the more people that have the Dropbox app, the more valuable Dropbox becomes)
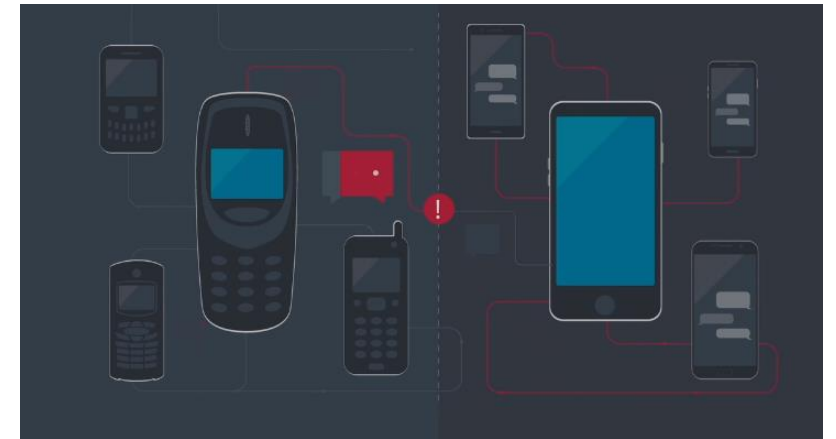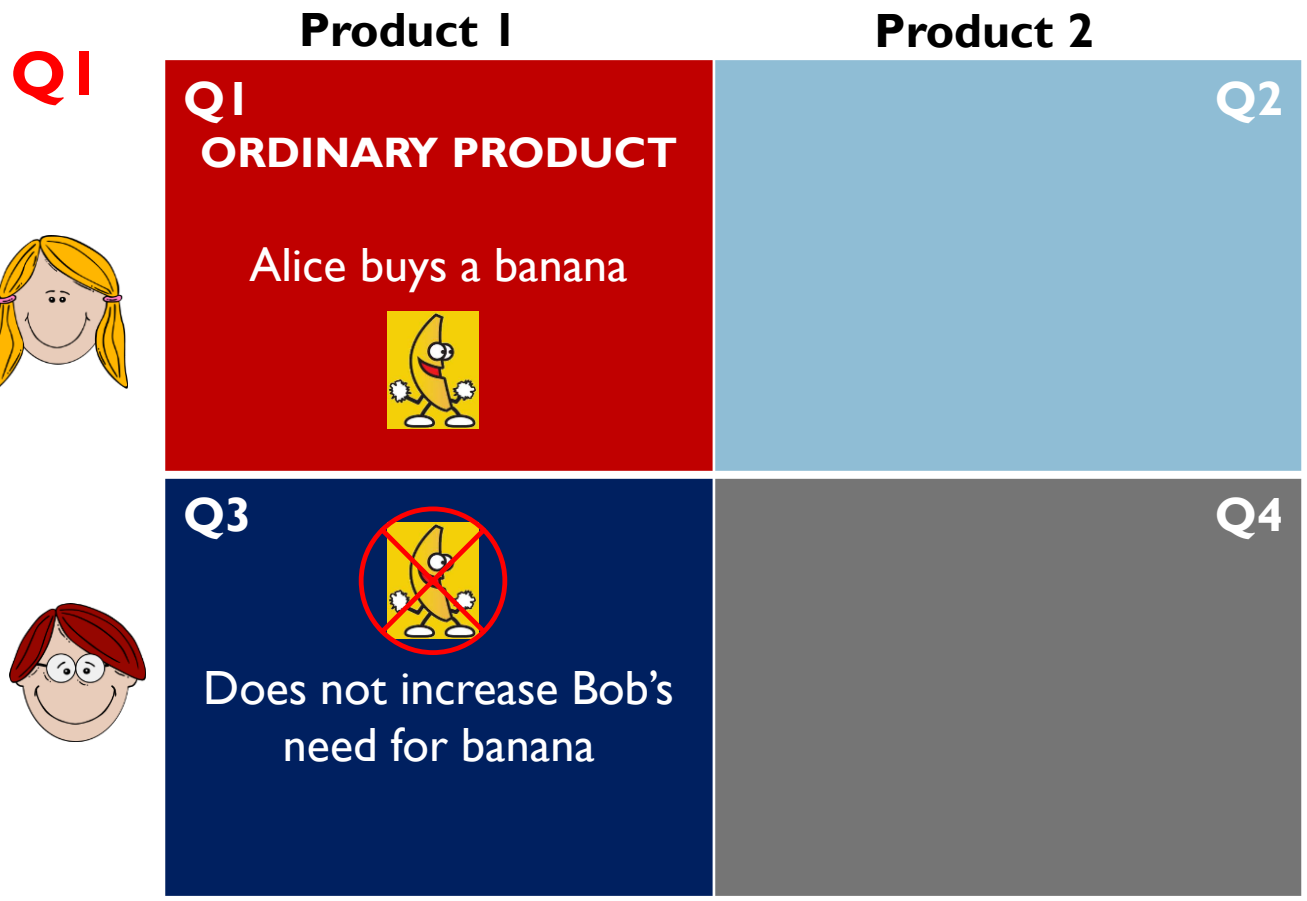
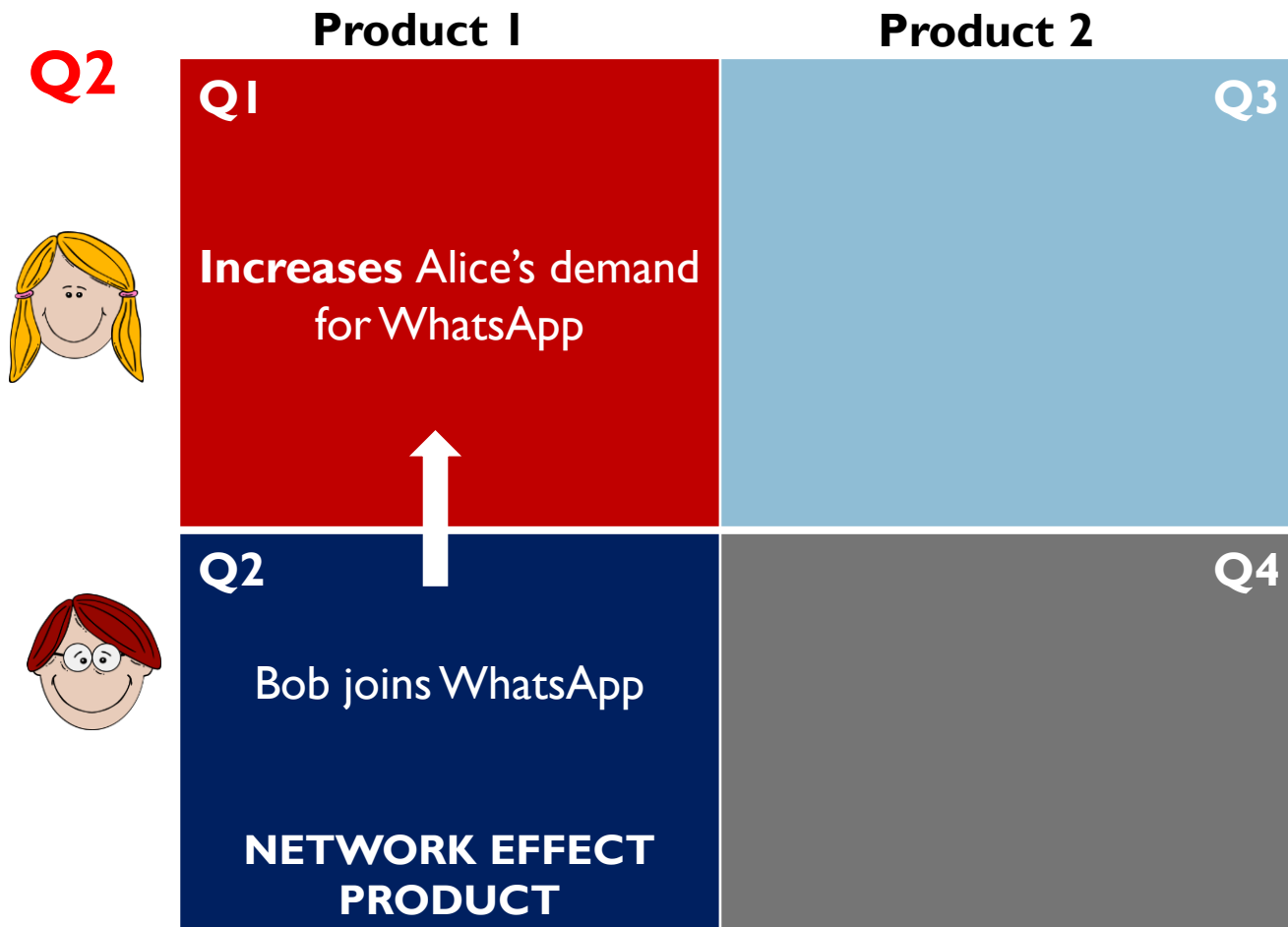# Example: WhatsApp

VS.

Network effects in one-sided markets

- The economic value of the WhatsApp platform stemmed from its network effects rather than the technology itself
- How does WhatsApp make money? "If the product is free, you are the product"

2×2 matrix of complements and network effects

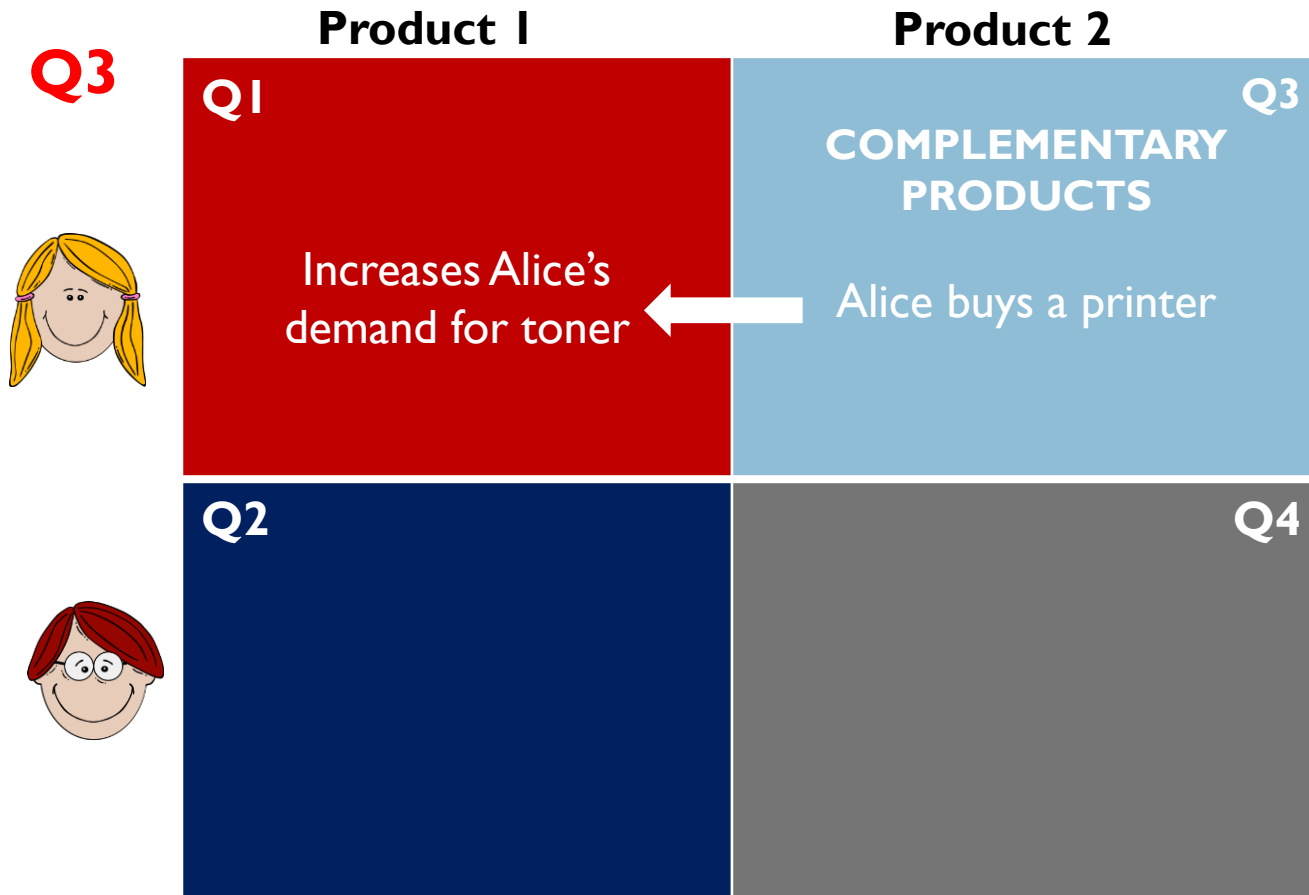|	**Product 1**	**Product 2**
	Q1 **ORDINARY PRODUCT** Alice buys a banana	**Q2**
	Q3 Does not increase Bob's need for banana	**Q4**

Q1

- **Ordinary products (Q1):** Products that offer standalone functionality and can be used by individuals without benefiting from broader adoption (e.g., a banana, a hammer)

2×2 matrix of complements and network effects

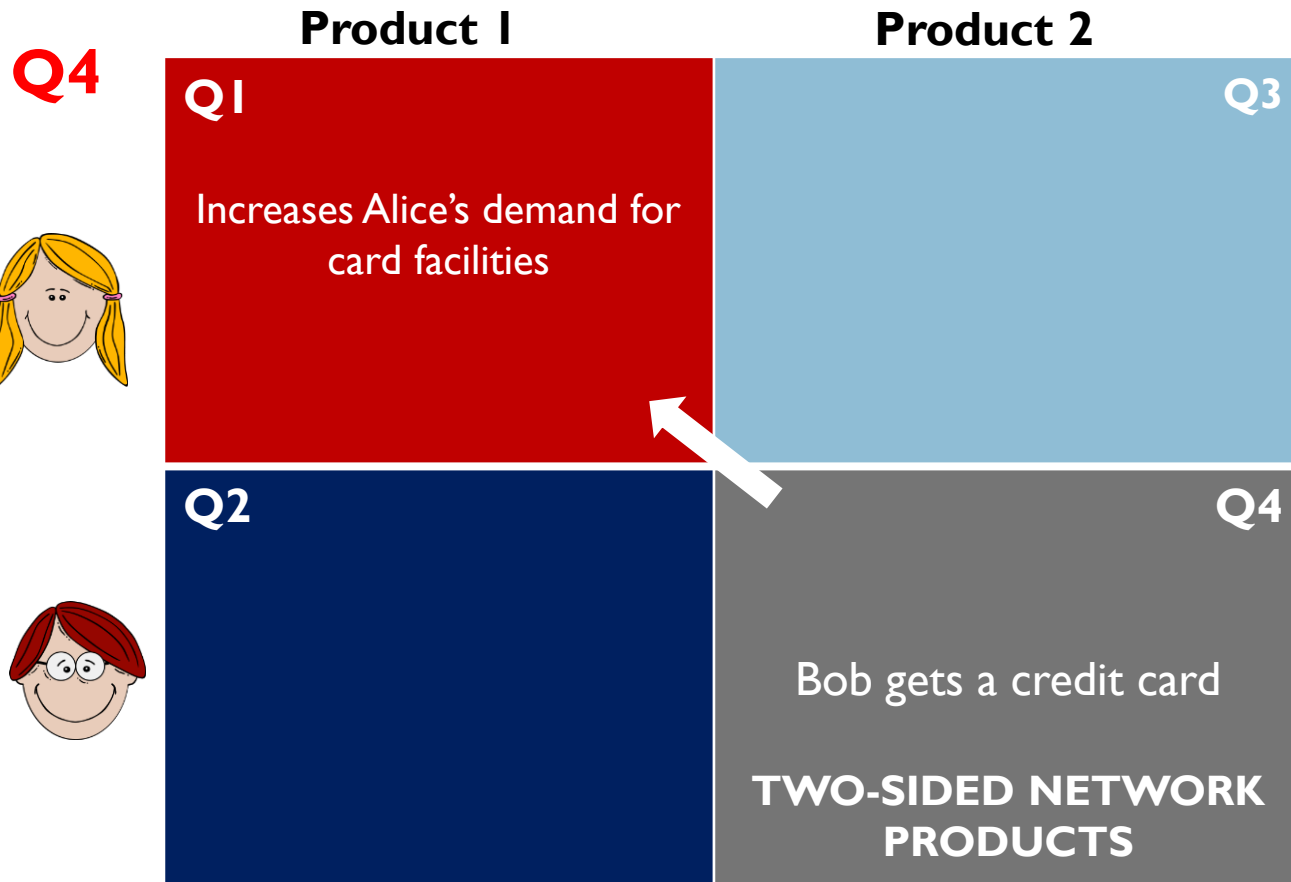|	**Product 1**	**Product 2**
Q2	**Q1** **Increases** Alice's demand for WhatsApp	**Q3**
	Q2 Bob joins WhatsApp **NETWORK EFFECT PRODUCT**	**Q4**

- **Network effect products (Q2):** Products that provide more value if adopted by more people (e.g., phones, fax machines)

2×2 matrix of complements and network effects

Product 1   **Product 2**

Q3

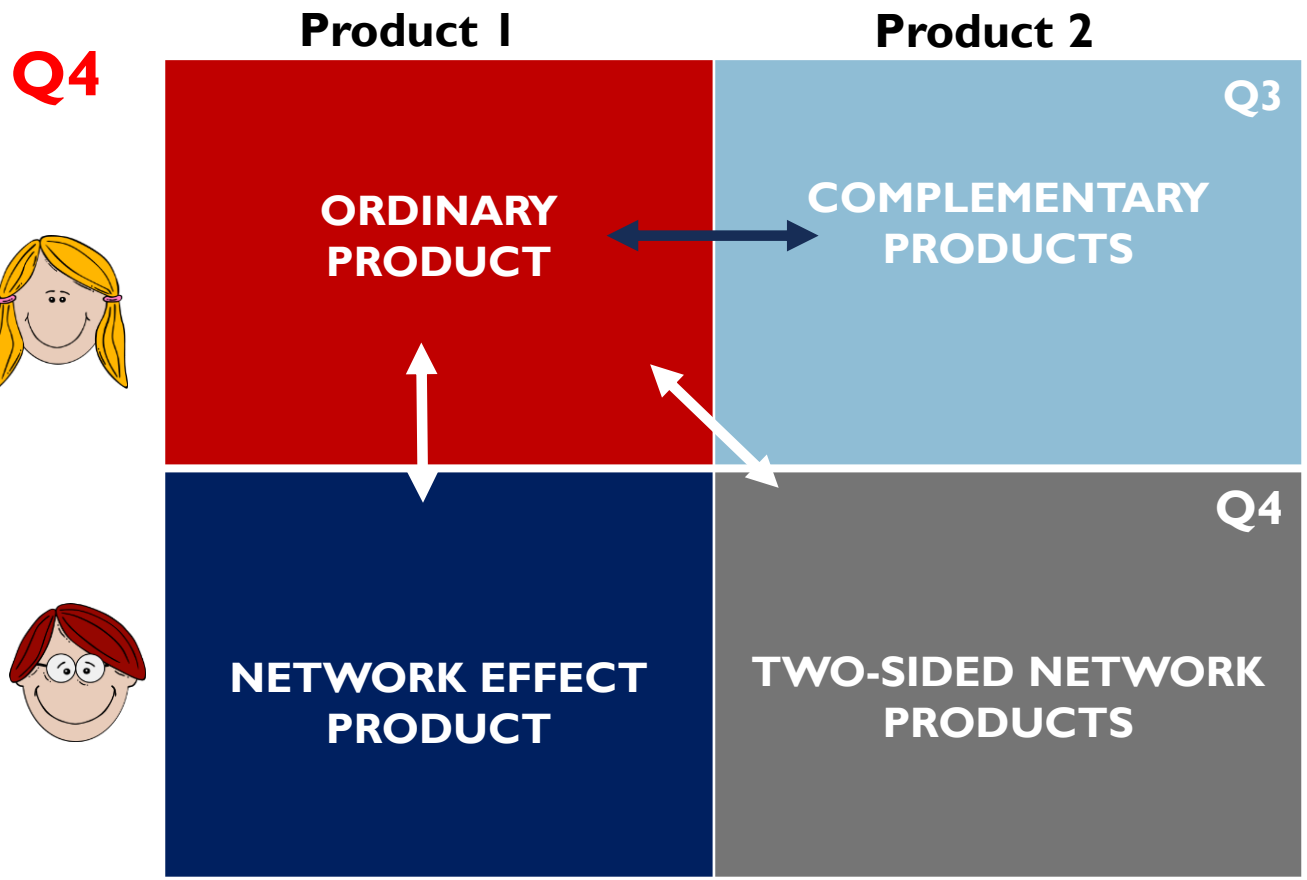| Q1	Q3 COMPLEMENTARY PRODUCTS
Increases Alice's demand for toner ←	Alice buys a printer
Q2	Q4

- **Complementary products (Q3):** Products that provide more value if paired with a second product (e.g., a razor handle plus blade, a printer plus toner).

2×2 matrix of complements and network effects

Q4

	Product 1	**Product 2**
	Q1 Increases Alice's demand for card facilities	**Q3**
	Q2	**Q4** Bob gets a credit card **TWO-SIDED NETWORK PRODUCTS**

- **Two-sided network products (Q4):** Products that provide more value to one person if paired with a second product bought by a different person (e.g., a consumer credit's card plus a retailer's credit card reader, Uber's rider app plus Uber's driver app)

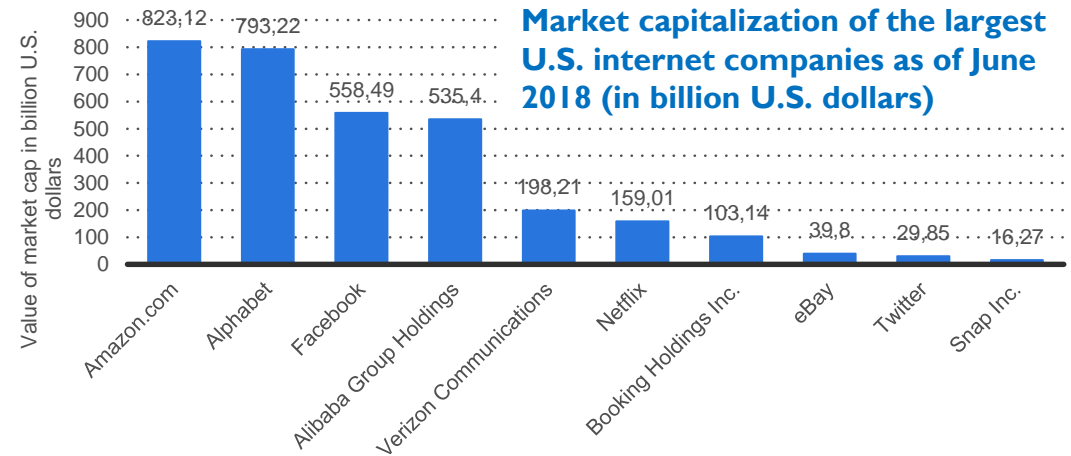# 2×2 matrix of complements and network effects

Properties of the most valuable companies in the digital age

- Most valuable companies before the digital age

  - manufacturing

  - resources

Market capitalization of the largest U.S. internet companies as of June 2018 (in billion U.S. dollars)

- 3 most valuable companies in the digital age – Amazon, Alphabet, and Facebook – share 3 properties:

  1. Inherently digital

  2. Create digital platforms

  3. Experiment and expand

Sourse: finance.yahoo.com

Free, perfect and instant

- Many of **extremely valuable companies** give away products and services for free

- Key elements of digital strategy to understand:
  1) Why giving away a product or service for free is possible? (Hint: The free stuff often costs nothing)
  2) The conditions under which free can be profitable (Hint: the free side of the business must support the paid side of the business)

Thank You

For references contact your instructor at nmilovantseva@hse.ru