MOT132A

Geerten van de Kaa

Teaching video for week 2

Tiktok

Instagram Reel

Youtube short

- What can ByteDance, Facebook and Google do to increase the market share for their platform?
- The underlying academic question: Which factors affect technology dominance?

Part 2: Timing of entry

Overview

- Increasing returns suggests that timing of entry can be very important.
- There are a number of advantages and disadvantages to being a first mover, early follower or late entrant. These categories are defined as follows:
  - **First movers** are the first entrants to sell in a new product or service category ("*pioneers*")
  - **Early followers** are early to market *but not first*.
  - **Late entrants** do not enter the market until the product begins to penetrate the mass market or later.
- First Mover (dis)Advantages theory (Lieberman and Montgomery, 1988; Lieberman and Montgomery, 1998)

First-Mover Advantages and Disadvantages

- Being a first mover can confer the advantages of:
  - Brand loyalty and technological leadership
  - Preemption of scarce assets
    - examples?
  - Exploiting buyer switching costs and reaping increasing returns advantages.

First-Mover Advantages and Disadvantages

- However, first movers often bear disadvantages also:
  - High research and development expenses
  - Undeveloped supply and distribution channels
  - Immature enabling technologies and complements
  - Uncertainty of customer requirements

First-Mover Advantages and Disadvantages

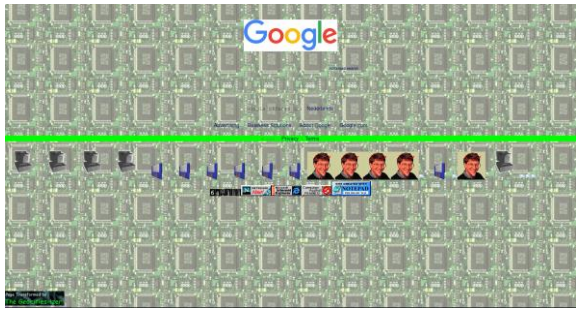
- The market often perceives first movers as having advantages because it has misperceived who was first.

- Vine vs Tiktok?
- Iphone vs LG prada?

Product	First Mover	Notable Follower(s)	The Winner
8 mm video camera	Kodak	Sony	Follower
Disposable diaper	Chux	Pampers Kimberly Clark	Follower
Float glass	Pilkington	Corning	First mover
Groupware	Lotus	AT&T	First mover
Instant camera	Polaroid	Kodak	First mover
Microprocessors	Intel	AMD Cyrix	First mover
Microwave	Raytheon	Samsung	Follower
Personal computer	MITS (Altair)	Apple IBM	Followers
Personal computer operating system	Digital Research	Microsoft (MS-DOS)	Follower
Spreadsheet software	VisiCalc	Microsoft (Excel) Lotus	Followers
VCR	Ampex/Sony	Matsushita	Follower
Video game console	Magnavox	Atari Nintendo	Follower
Web browser	NCSA Mosaic	Netscape Microsoft (Internet Explorer)	Followers
Word processing software	MicroPro (WordStar)	Microsoft (MS Word) Wordperfect	Followers
Workstation	Xerox Alto	Sun Microsystems Hewlett-Packard	Followers

Factors Influencing Optimal Timing of Entry

1. How certain are customer preferences?
   a) Websites (http://www.youtube.com/watch?v=eywi0h_Y5_U
   b) Playstation, bluray drive



And Apple?

1. http://www.youtube.com/watch?v=eywi0h_Y5_U

Factors Influencing Optimal Timing of Entry

2. How much improvement does the innovation provide over previous solutions?

3. Does the innovation require enabling technologies, and are these technologies sufficiently mature?

   long lasting batteries for mobile phones

Factors Influencing Optimal Timing of Entry

4. Do complementary goods influence the value of the innovation, and are they sufficiently available? (gaming consoles)

5. How high is the threat of competitive entry?

6. Are there increasing returns to adoption?

Factors Influencing Optimal Timing of Entry

7. Can the firm withstand early losses?

8. Does the firm have resources to accelerate market acceptance? (chip shortages PS5, XBOX)

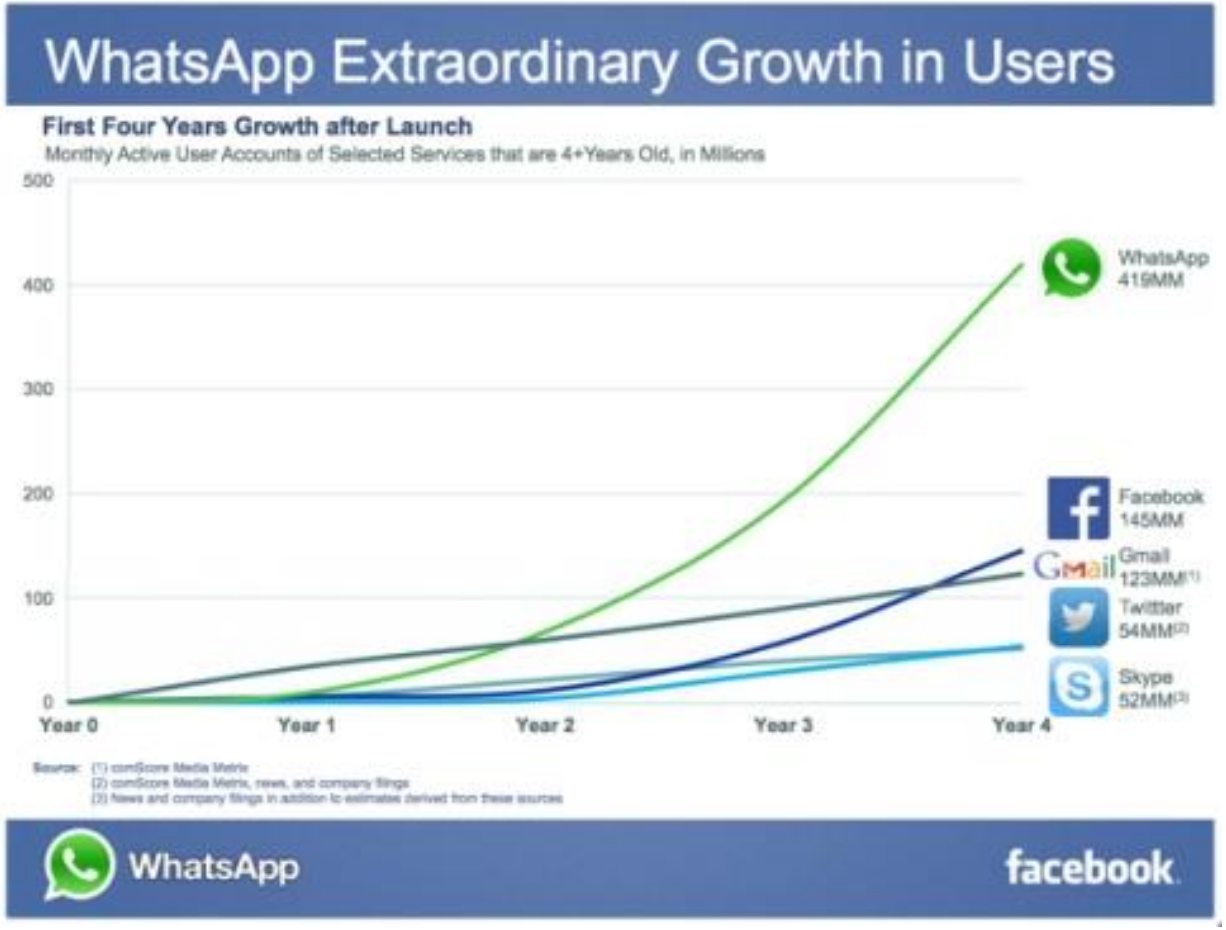
9. Is the firm's reputation likely to reduce the uncertainty of customers, suppliers, and distributors?

Strategies to Improve Timing Options

- To have more choices in its timing of entry, a firm needs to be able to develop the innovation early or quickly.
- A firm with fast-cycle development processes can be both an early entrant, and can quickly refine its innovation in response to customer feedback.
- In essence, a firm with very fast-cycle development processes can reap both first- and second-mover advantages.

Collaboration strategies

Facebook aquired whatsapp for 19 billion dollar in 2014 while it made only 900.000 per year, why?



Overview

- Firms must often choose between performing innovation activities alone or in collaboration.
- Collaboration can enable firms to achieve more, at a faster rate, and at less cost and risk.
- However, collaboration also entails sharing control and rewards, and may risk partner malfeasance.
- The advantages of going solo are compared with those of collaborating, and then different forms of collaboration are compared.

Reasons for Going Solo

- Whether a firm chooses to engage in solo development or collaboration will be influence by:
  - **Availability of capabilities** (does firm have needed capabilities in house? Does a potential partner?)
  - **Protecting proprietary technologies** (how important is it to keep exclusive control of the technology?)
  - **Controlling technology development and use** (how important is it for firm to direct development process and applications?)
  - **Building and renewing capabilities** (is the project key to renewing or developing the firm's capabilities?)

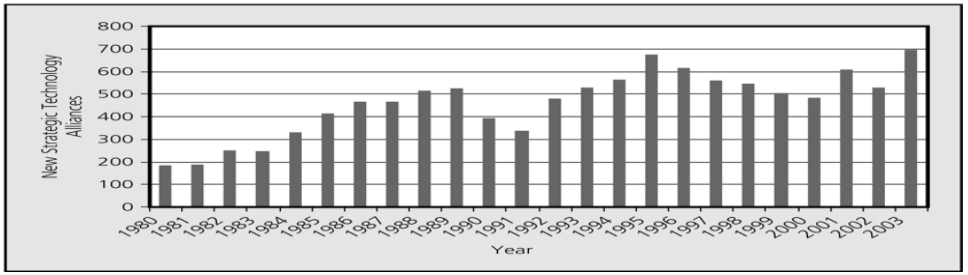
Advantages of Collaborating

- Collaborating can offer the following advantages:
  - Obtaining needed skills or resources more quickly
  - Reducing asset commitment and increase flexibility
  - Learning from partner
  - Sharing costs and risks
  - Can build cooperation around a common standard

Worldwide formation of strategic technology alliances is rising.

FIGURE 8.2
Wordwide Formation of New Technology or Research Alliances, 1980–2000

Source: J. Hagerdoon, Cooperative Agreements and Technology Indicators (CATI) database, unpublished tabulations (Maastricht, Netherlands: Maastricht Economic Research Institute on Innovation and Technology, 2001).



Types of Collaborative Arrangements

- There are numerous types of collaborative arrangements, each with its own advantages or costs.
  - **Strategic Alliances**: formal or informal agreements between two or more organizations (or other entities) to cooperate in some way.
    - **Joint Ventures**: A particular type of strategic alliance that entails significant equity investment and often establishes a new separate legal entity.
  - **Licensing**: a contractual arrangement that gives an organization (or individual) the rights to use another's intellectual property, typically in exchange for royalties.

Types of Collaborative Arrangements

- **Outsourcing**: When an organization (or individual) procures services or products from another rather than producing them in-house.

- **Collective Research Organizations**: Organizations formed to facilitate collaboration among a group of firms, government institutions, universities and or research institutes.

Choosing a Mode of Collaboration

- Firms should match the trade-offs of a collaboration mode to their needs.

FIGURE 8.4
Summary of Trade-offs between Different Modes of Development

	Speed	Cost	Control	Potential for Leveraging Existing Competencies	Potential for Developing New Competencies	Potential for Accessing Other Firms' Competencies
Solo Internal Development	Low	High	High	Yes	Yes	No
Strategic Alliances	Varies	Varies	Low	Yes	Yes	Sometimes
Joint Ventures	Low	Shared	Shared	Yes	Yes	Yes
Licensing In	High	Medium	Low	Sometimes	Sometimes	Sometimes
Licensing Out	High	Low	Medium	Yes	No	Sometimes
Outsourcing	Medium/High	Medium	Medium	Sometimes	No	Yes
Collective Research Organizations	Low	Varies	Varies	Yes	Yes	Yes

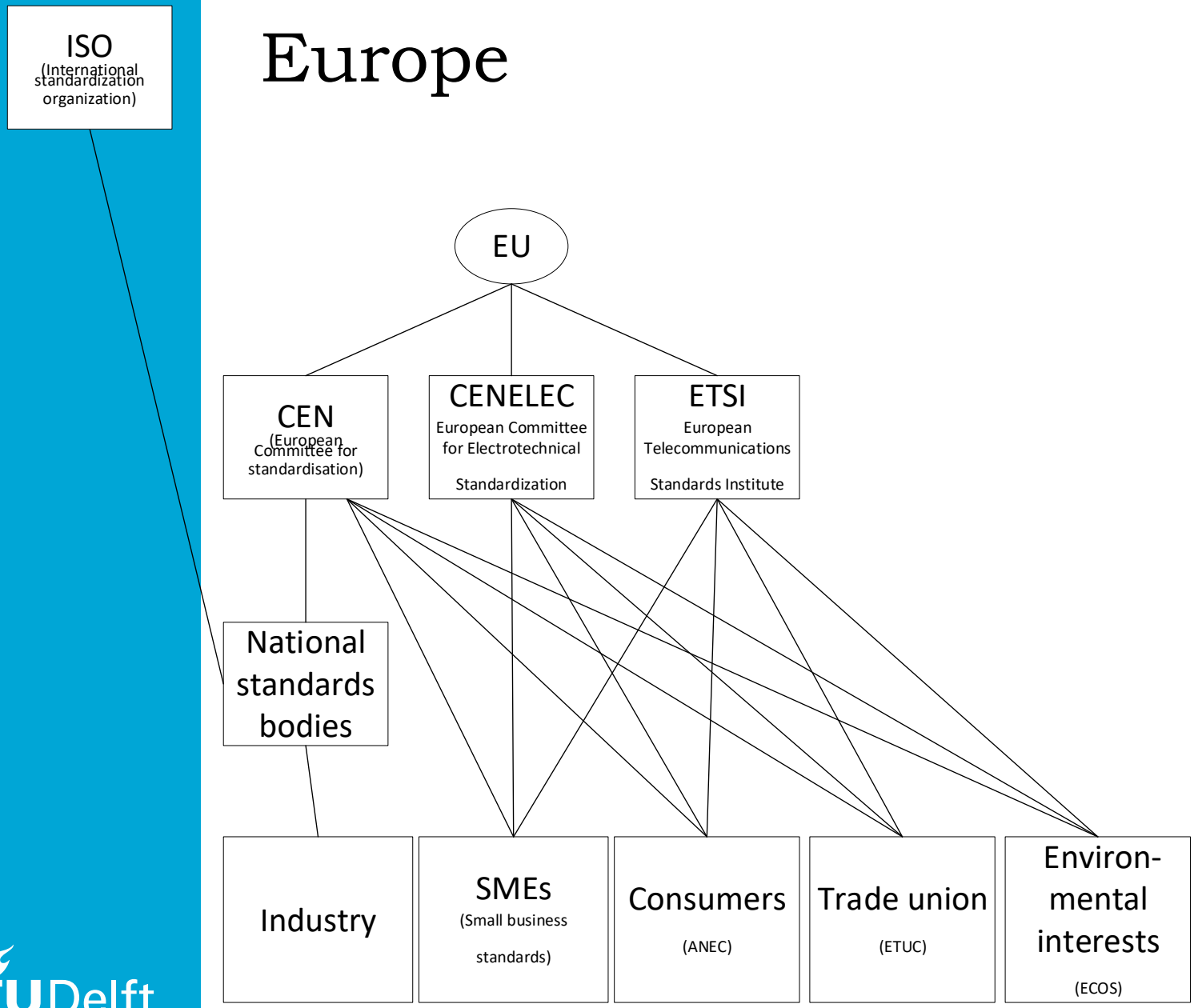
Choosing Partners

- **Partner Selection**
  - **Resource fit:** How well does the potential partner fit the resource needs of the project? Are resources complementary or supplementary?
  - **Strategic fit:** Does the potential partner have compatible objectives and styles?
- Partner governance
  - Alliance contracts
  - Relational governance

Forms of cooperation related to standardization

- National standardization organization
  - NEN (netherlands standardisation institute)
- International standardization organization
  - ISO (International organization for standardization
- Regional standardization organization
  - ETSI (European Telecommunication standardization institute)
- Governmental standardization organization
  - Chinese Ministry of Science and Technology
- Professional standardization organization
  - IEEE (Institute of Electrical and Electronics Engineers)

Standardization infrastructure in Europe



Standardization infrastructure in China

National level

State Council (SC), Administration for Quality Supervision Inspection & Quarantine(AQSIQ), Administration of Certification & Accreditation of China (CNCA), C*hina National Accreditation Board for Certifiers* (*CNAB*), *China National Accreditation Board for Laboratories* (*CNAL*), *China National Auditor and Training Accreditation Board* (*CNAT*), *China Quality Certification Centre* (*CQC*), *China Certification & Inspection Group* (*CCIC*), Standards Administration of China (SAC), *China Association for Standardization* (*CAS*), *China National Institute of Standardization* (*CNIS*), *Standards Press of China* (*SPC*), Ministries and their standardisation workgroups (in particular Ministry of Science and Technology(MOST), Ministry of Information Industry (MII), Ministry of Trade (MT), Ministry of Defence (MD), Ministry of State Security (MSS), and Ministry of Commerce (MC)), National Development and Reform Commission (NDRC), *WTO TBT National Inquiry Center,* International Inspection and Quarantine Standards and Technical Regulations Research Center, People's Liberation Army (PLA), State Security Agencies (SSAs), National Radio Monitoring Center (NRMC)

Sector level

Sector government departments within SC (such as State Encryption Management Commission (SEMC), State Economic and Trade Commission (SETC), and State Bureau of Quality and Technical Supervision (SBQTS), Science and Technology Office (STO), National standardisation technical committees, Sector specific testing and inspection centres, 26 Trade standardisation research institutes including China Electronic Standardization Institute (CESI), 12 Trade standardisation organisations including CECS, CESA and CCSA

Local level

158 Local level standards research institutes including Shanghai Institute of Standardisation (SIS) and Shenzhen Institute of Standards and Technology (SIST), 257 local standardisation organisations including Shanghai Information Electronics Association (SIEA), Local governmental agencies at city and province–municipality level Quality and technology supervision bureaus of provinces, municipalities and autonomous regions

Discussion

- Identify an example of collaboration between two or more organizations.
- What were the advantages and disadvantages of collaboration vs solo development?
- What collaboration mode did the partners choose?
- What were the advantages and disadvantages of the collaboration mode?

Part 2: Deployment strategy

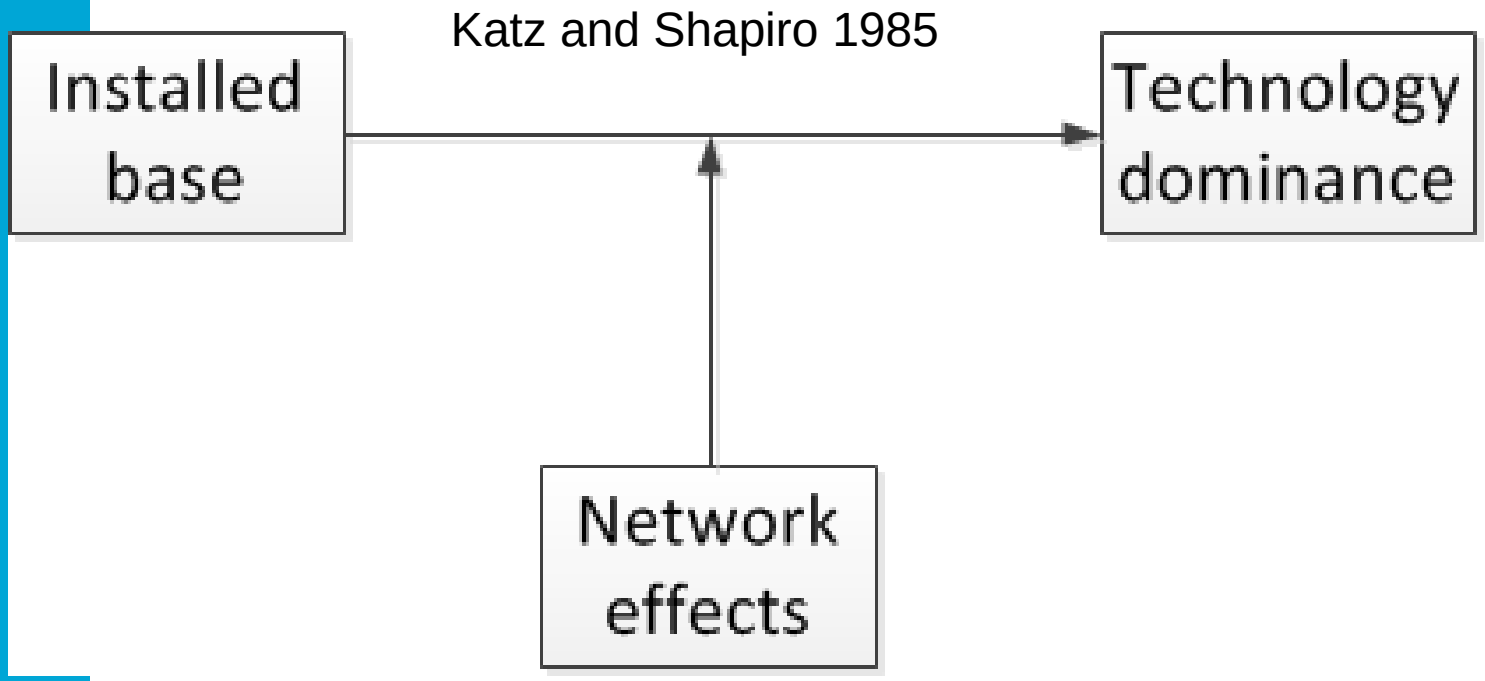
Operationalizing success

- Two types of standard users
- Measuring dominance
  - Market share
  - Network size
  - Lock in / lock out
- Measuring success
  - Acceptance
  - Acceptability

Building a model for standard dominance

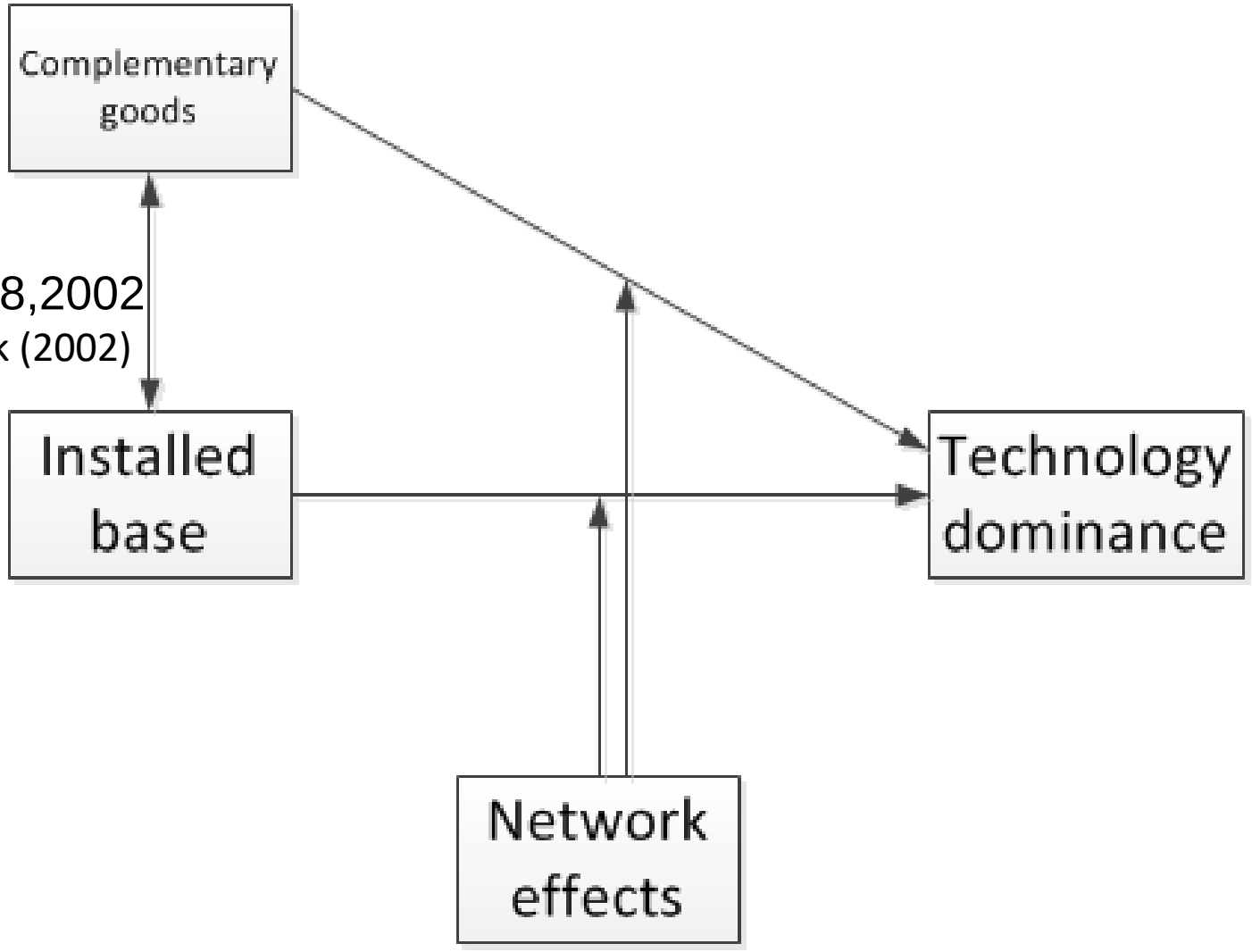
Why Dominant Designs Are Selected

- Katz and Shapiro (1985) proposes that the network effects moderates the strength of the effect of installed base
- Gallagher and Park (2002) and Schilling (1998, 2002) study various standards battles and arrive at factors for standard selection
- Ample researcher have continued this line of research and to date various factors have been found


Katz and Shapiro 1985
Installed base
Technology dominance
Network effects

Schilling 1998,2002

Gallagher and Park (2002)



Technology strategy

- Pricing strategy
- Appropriability strategy
- Timing of entry
- Marketing communications
- Preemption of scarce assets
- Distribution strategy
- Commitment

Pricing strategy

- What are firm's objectives?
  - Survival
  - Maximize current profits
  - Maximize market share
- Typical pricing strategies for new innovations:
  - Penetration Pricing (very low price or free, pricing below costs),
    - question: what is the underlying business model for that? Examples?
  - Market skimming strategy (high initial prices)
- Manipulation of customer's perception of price

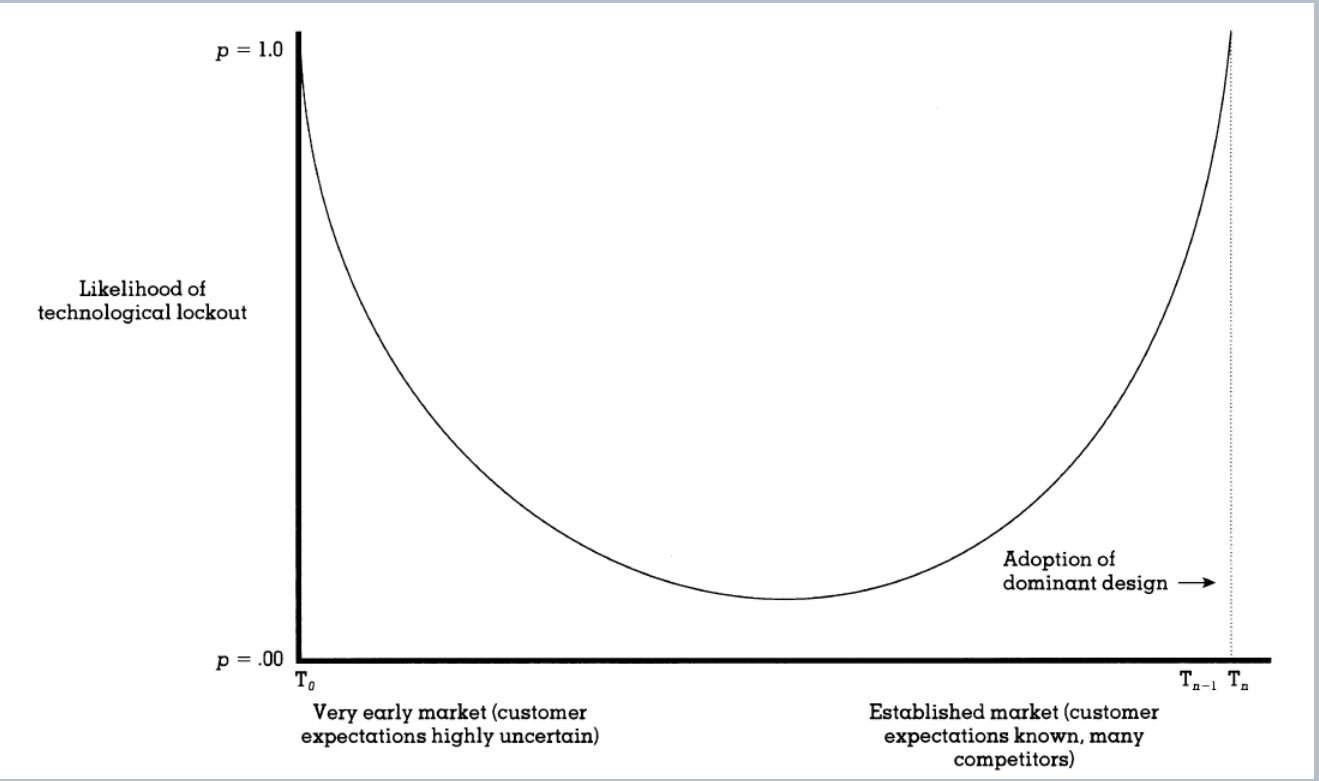
Appropriability strategy

- Firms must decide *whether* and *how* to protect their technological innovations.
- Protecting innovation helps a firm retain control over it and appropriate the rents from it.
- However, sometimes *not* protecting a technology is to the firm's advantage – it may encourage others to support the technology and increase its likelihood of becoming dominant.

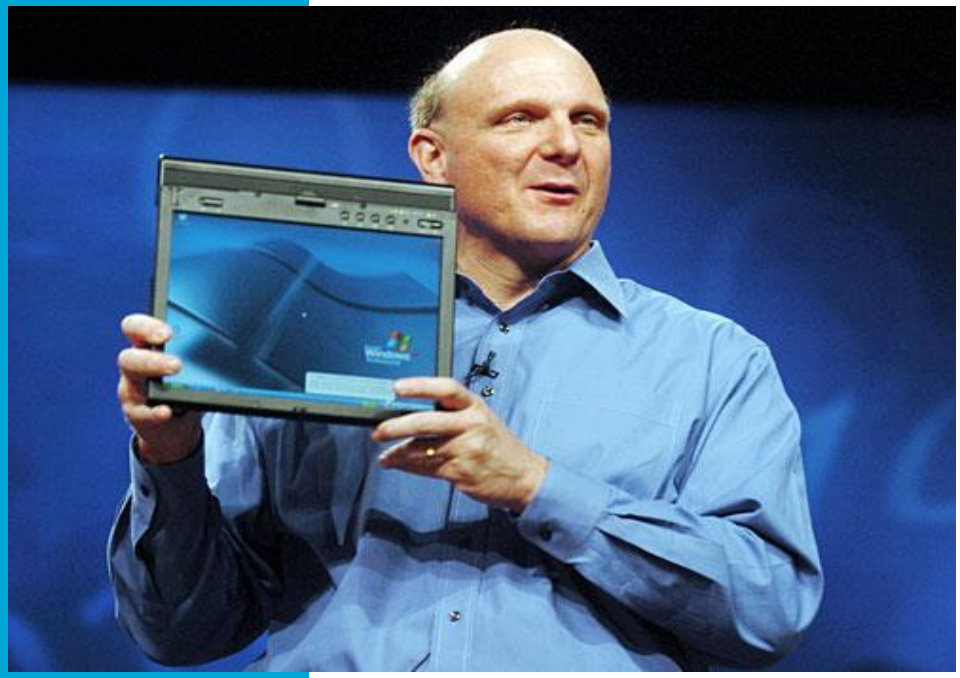
Timing of entry

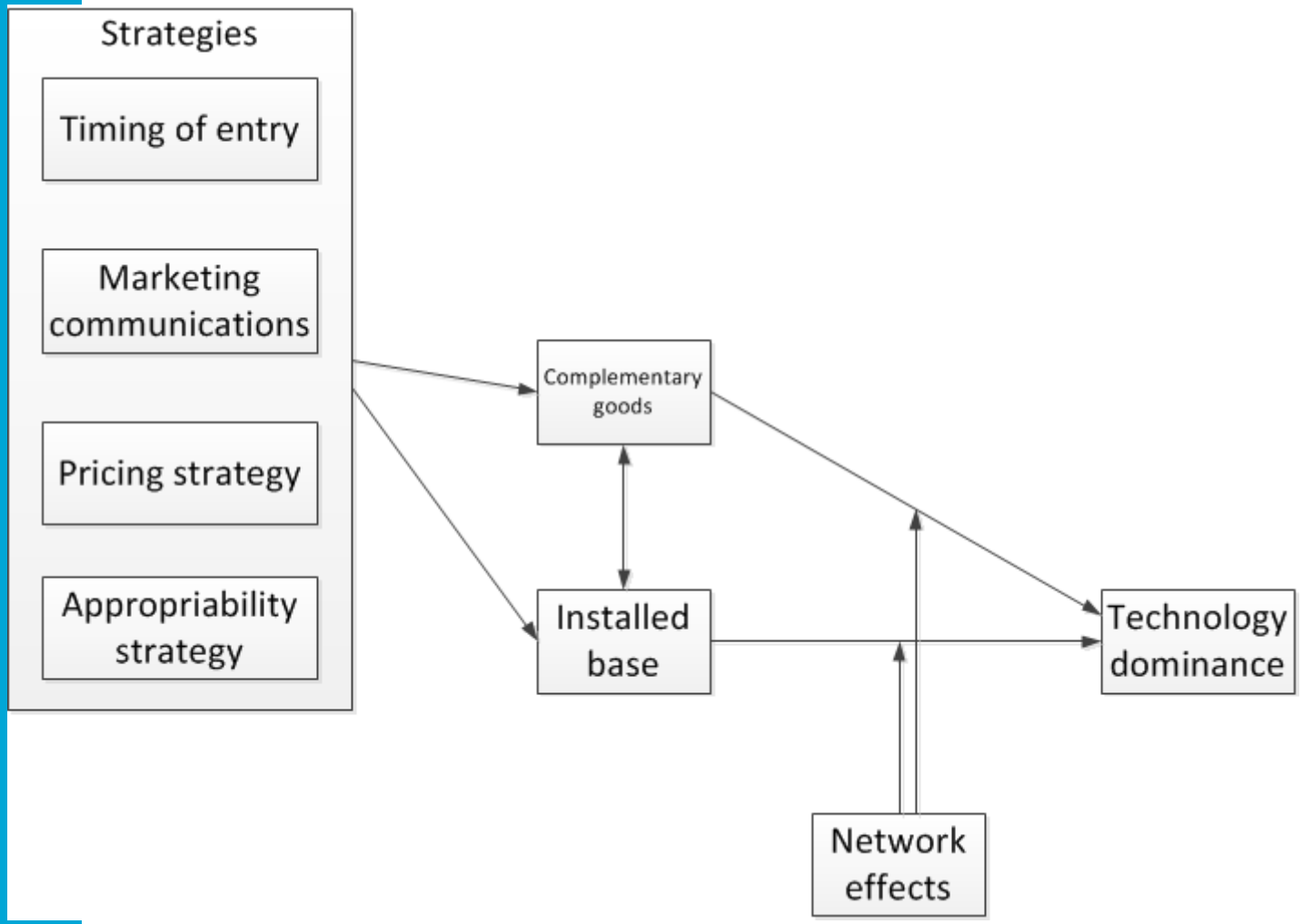
Timing of entry

- Timing of entry and likelihood of technological lockout



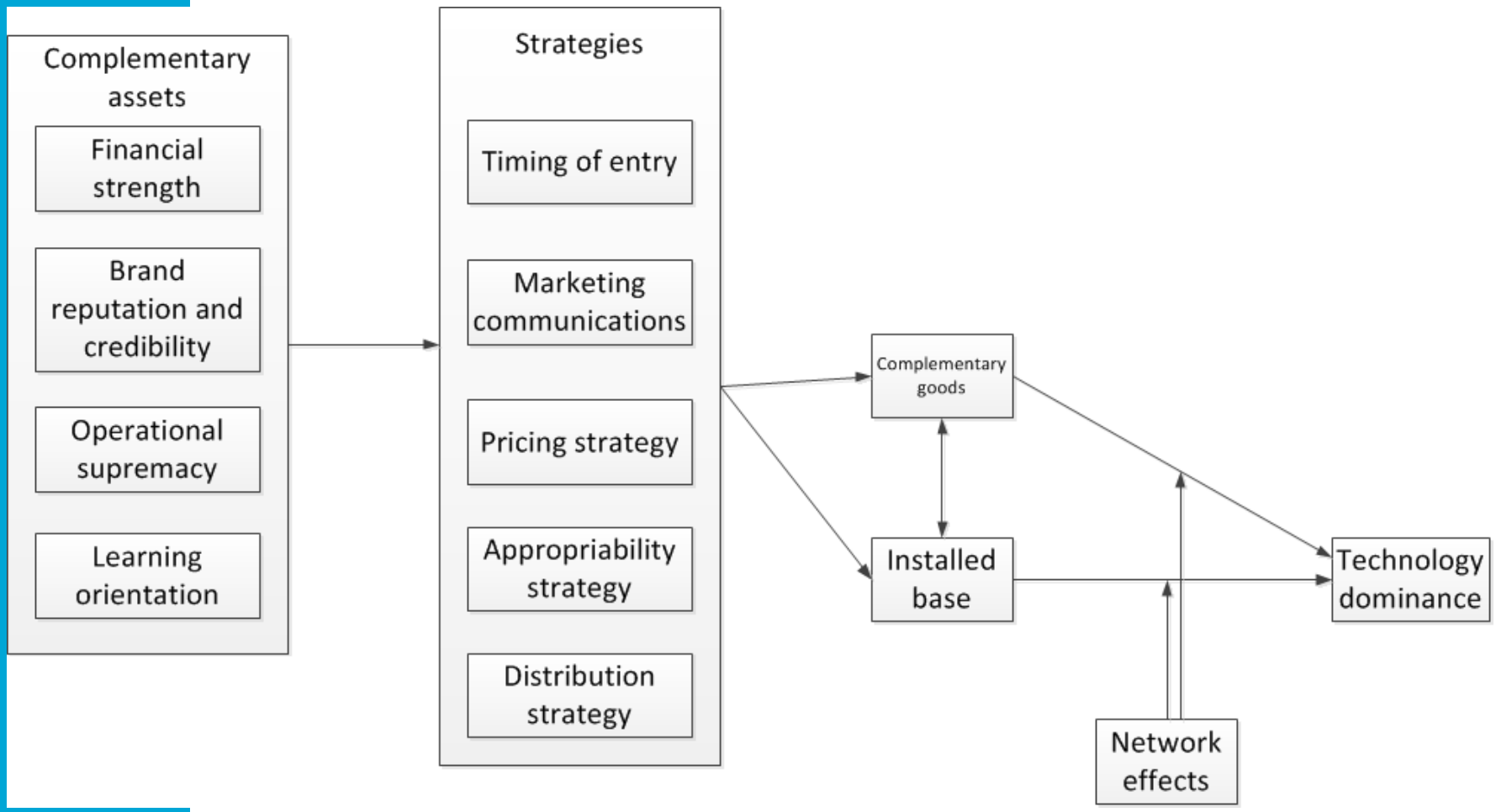
Marketing communications




Strategies
Timing of entry
Marketing communications
Pricing strategy
Appropriability strategy
Complementary goods
Installed base
Technology dominance
Network effects

Characteristics of the technology supporter

- Financial strength
- Brand reputation and credibility
- Operational supremacy
- Learning orientation


Complementary assets
Financial strength
Brand reputation and credibility
Operational supremacy
Learning orientation
Strategies
Timing of entry
Marketing communications
Pricing strategy
Appropriability strategy
Distribution strategy
Complementary goods
Installed base
Network effects
Technology dominance

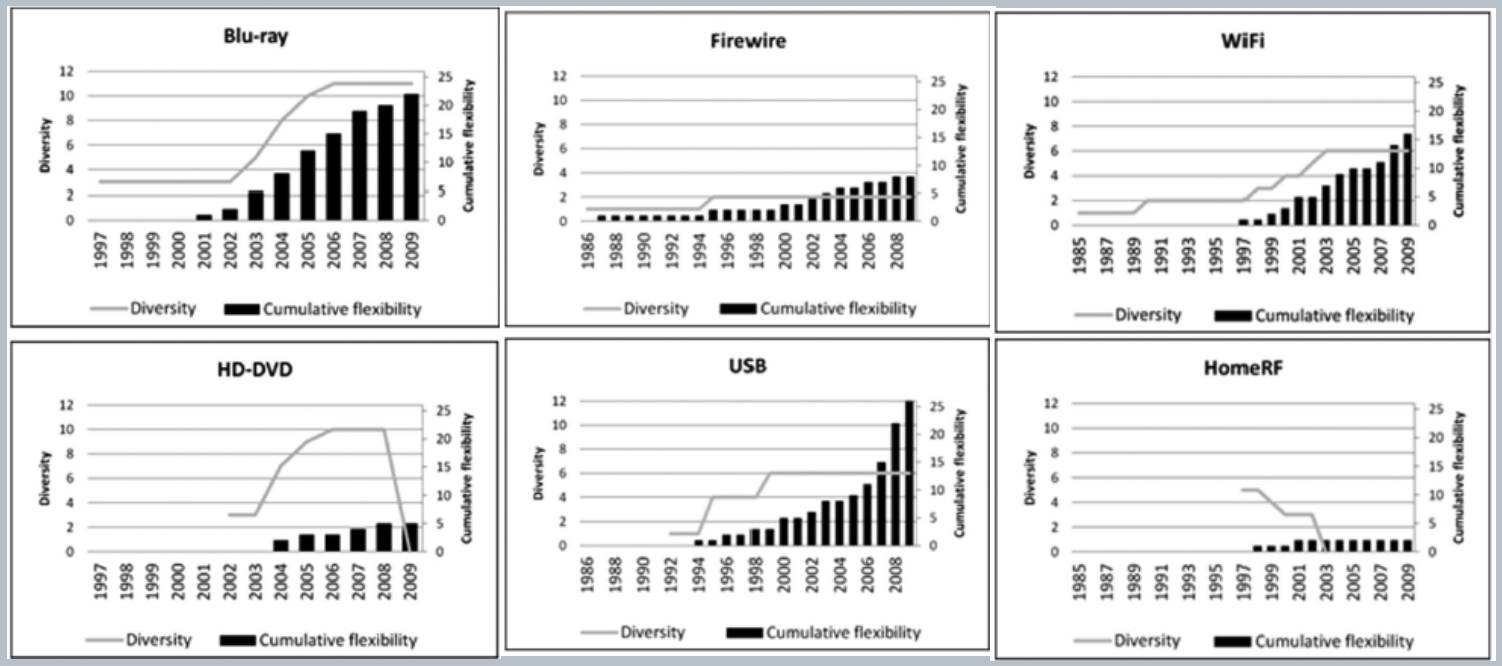
Characteristics of the technology

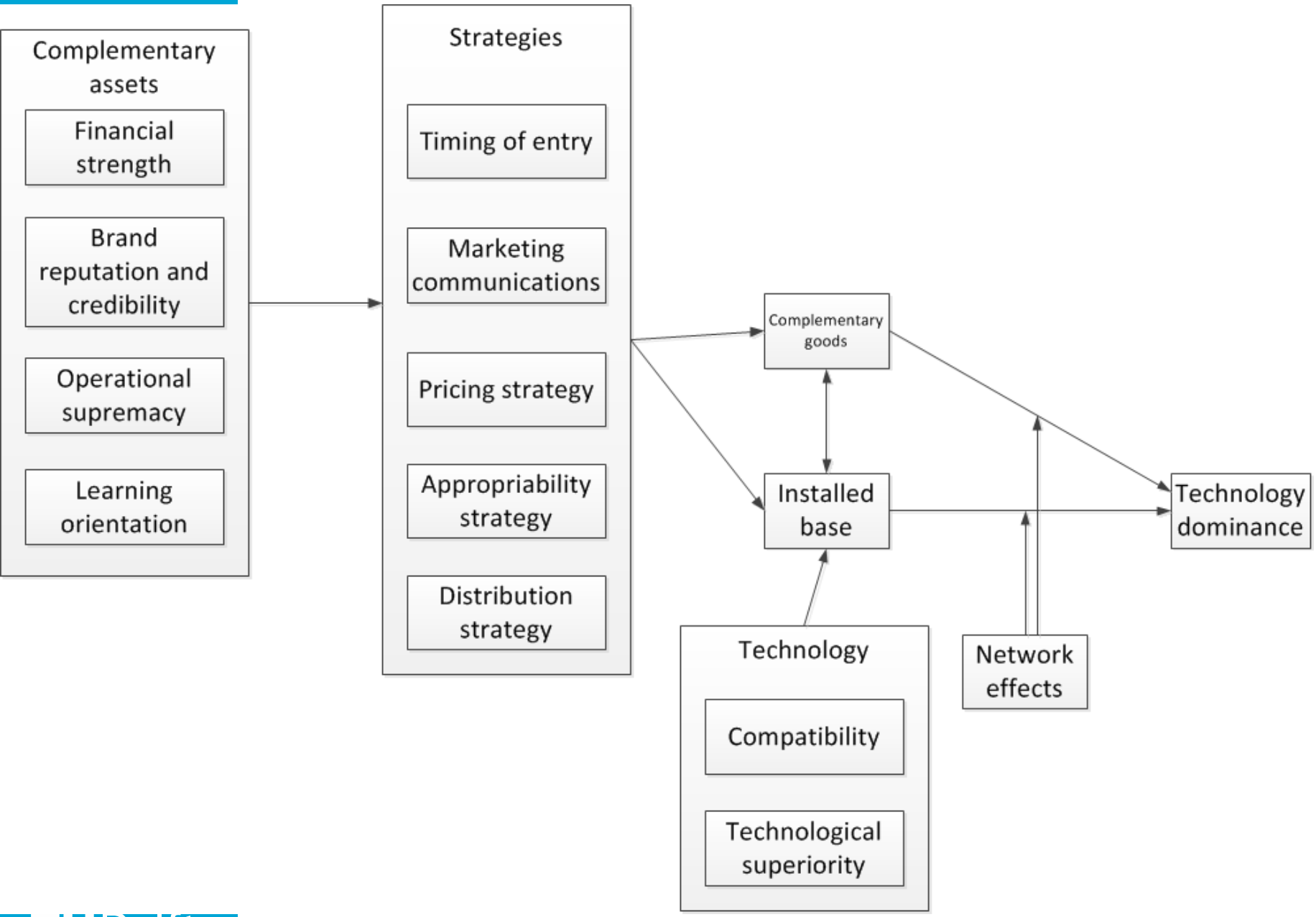
- Technological superiority
- Compatibility
- Complementary goods
- Flexibility

Factors for standard selection

Technological characteristics: flexibility

- Van den Ende et al. (2012) found that standards that are more changed to changing user requirements are more successful




Complementary assets
Financial strength
Brand reputation and credibility
Operational supremacy
Learning orientation
Strategies
Timing of entry
Marketing communications
Pricing strategy
Appropriability strategy
Distribution strategy
Complementary goods
Installed base
Technology dominance
Technology
Compatibility
Technological superiority
Network effects

Other stakeholders

- Previous installed base
- Big fish
- Regulator/ antitrust laws
- Suppliers
- Effectiveness of standard development process
- Network of stakeholders

Market mechanisms

- Bandwagon effect
- Number of options available
- Uncertainty in the market
- Rate of change
- Switching costs

Questions?