



The Importance of Multi-Sided Platforms for Innovation and Competitive Advantage in Digital Home Appliance Industry

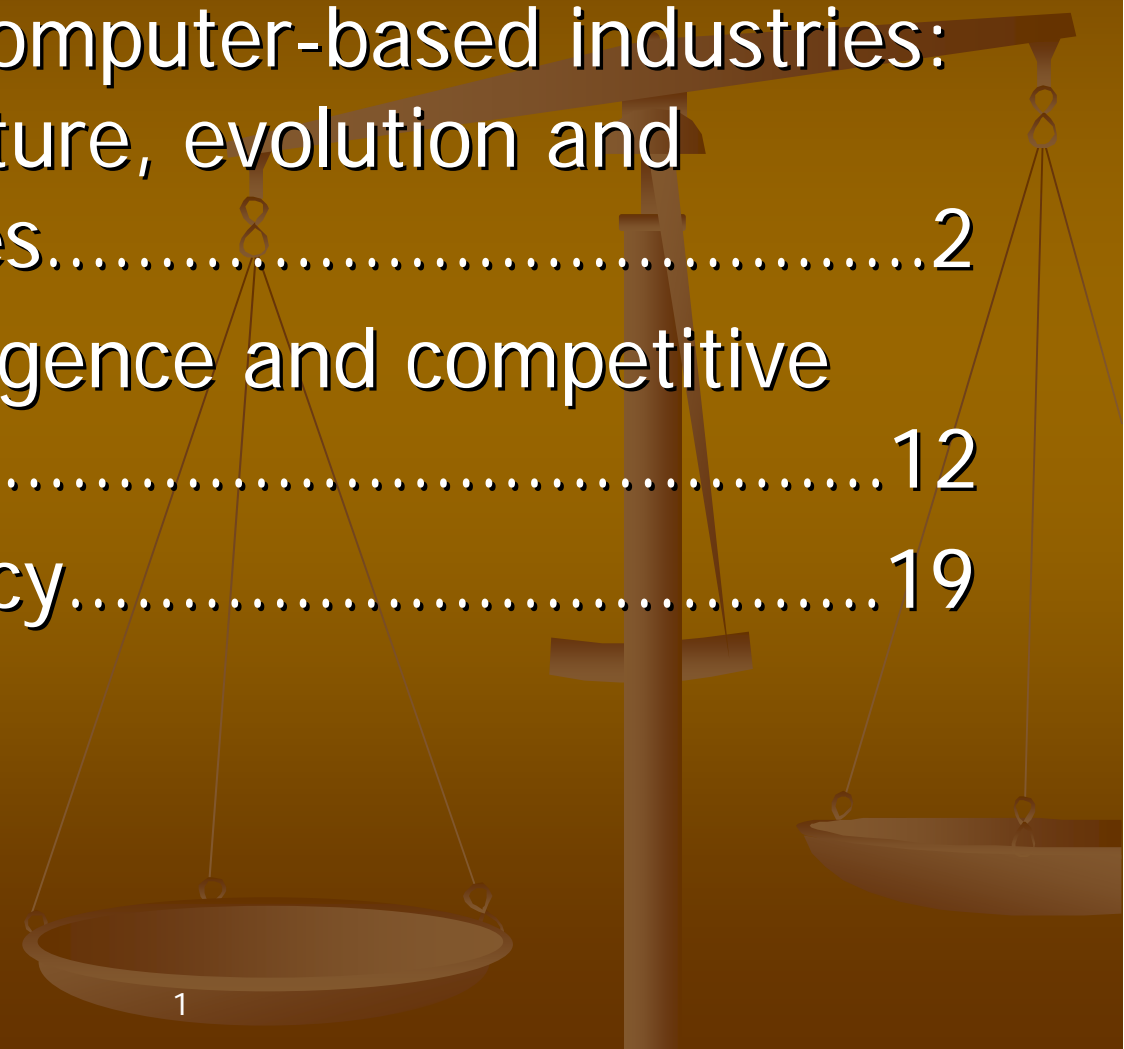
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Outline

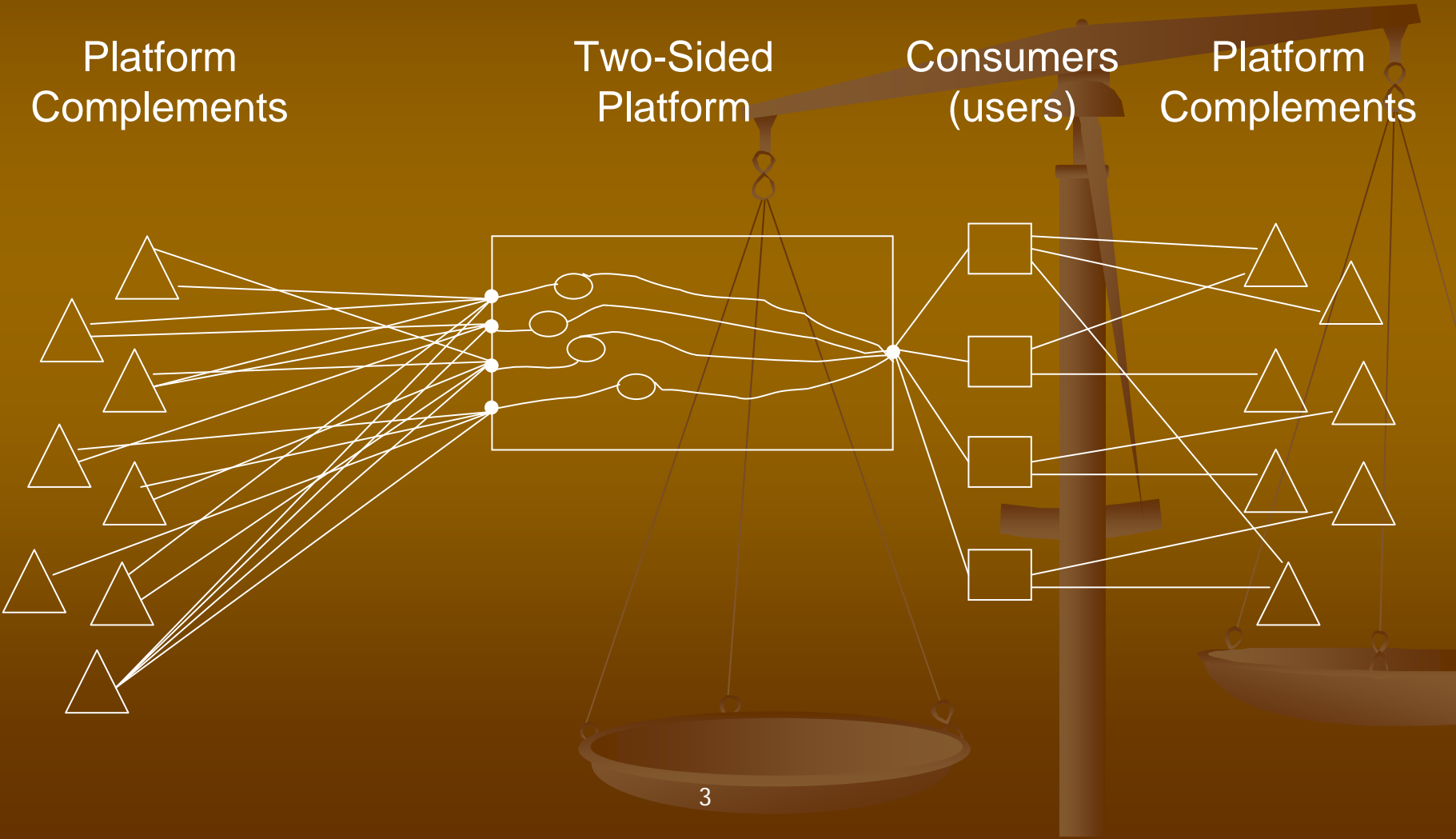
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1.

Platforms in computer-based industries: industry structure, evolution and strategic issues

Industry structure

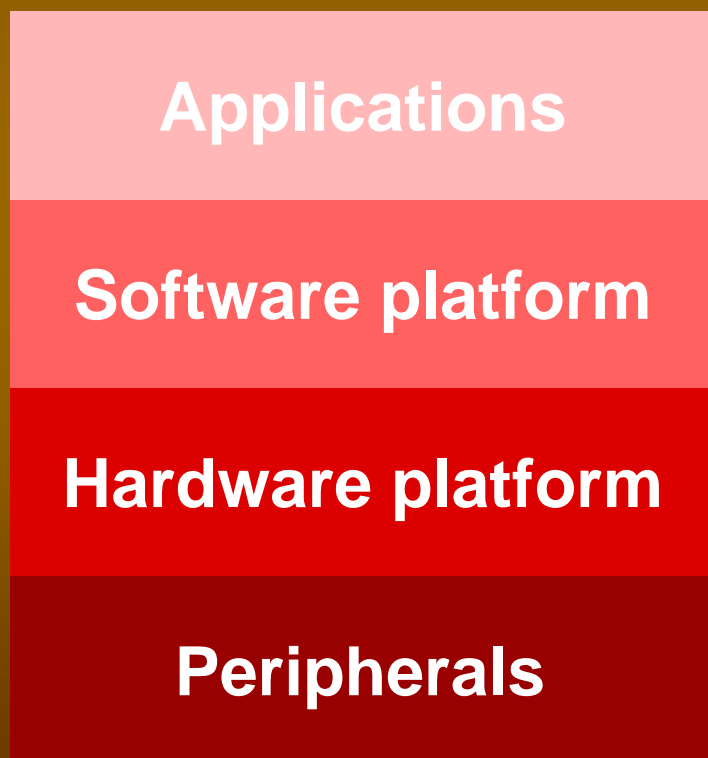


Overview and examples

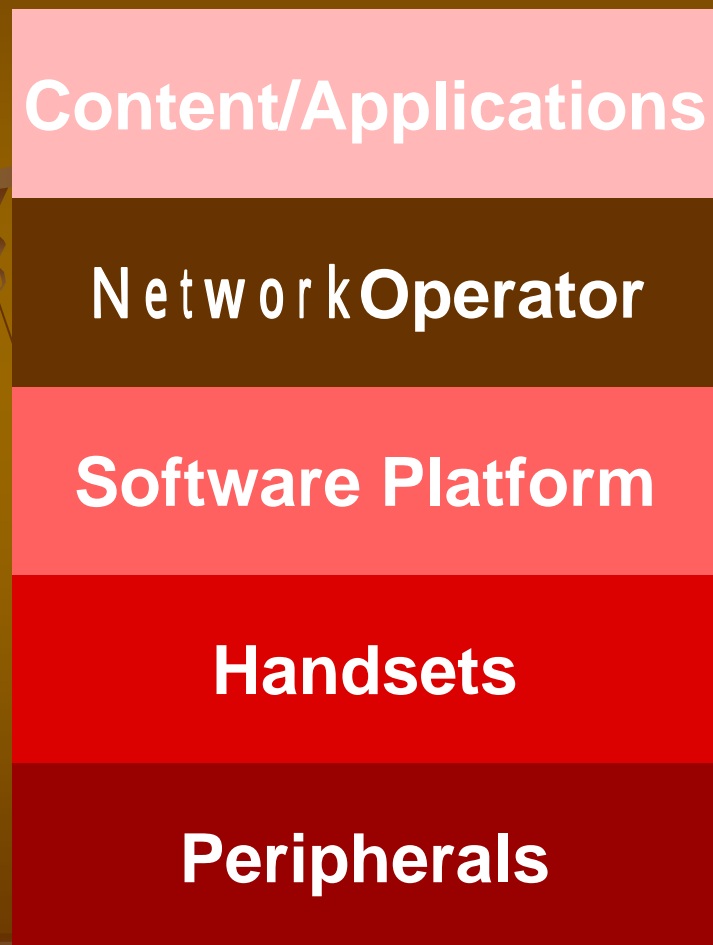
Platform	Examples	Complements	Examples
PC Operating Systems	Windows, MacOS, Solaris, Multos	Applications Hardware Platform Hardware Peripherals	Acrobat, Quicken, Office Dell, iMac, IBM TV-tuner card, CD-ROM
PDA's	PalmOS, Windows CE	Applications Hardware Platform Hardware Peripherals	Address Book, Graffiti Handspring, Pilot, Sony Clie GPS, Memory Card
Smart Mobile Phones	Symbian Windows CE	Applications Handsets Peripherals	Organizers, games Nokia, Ericsson, Samsung Car kit, headset, cover
Videogame consoles	Playstation, Game Cube, Xbox	Games Peripherals	Mario Bros., Halo Joystick, memory card
Digital media and services	i-mode, TiVo, T-Navi, Real Player	Content	Ring tones, movies, games, news, sports, shows, etc.

Platform Layers

PCs, PDAs,
Video Games

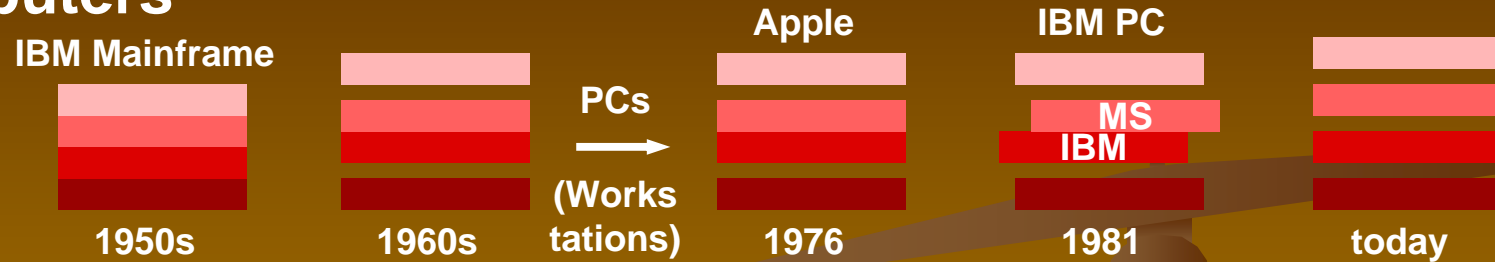


Smart Phones

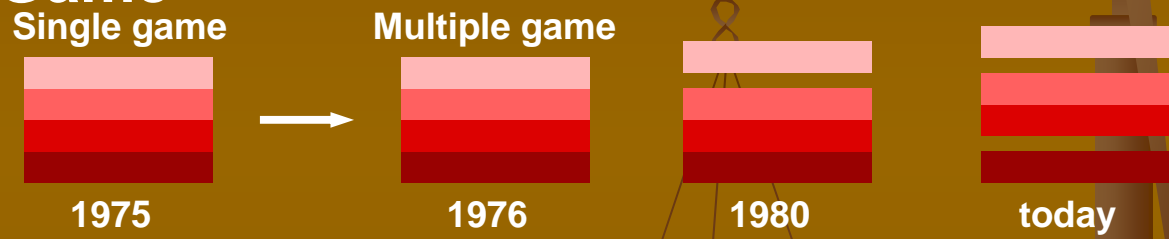


Vertical Disintegration

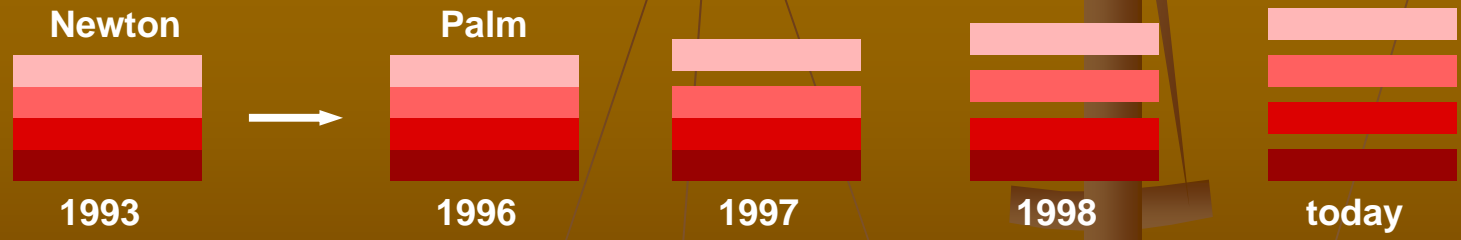
Computers



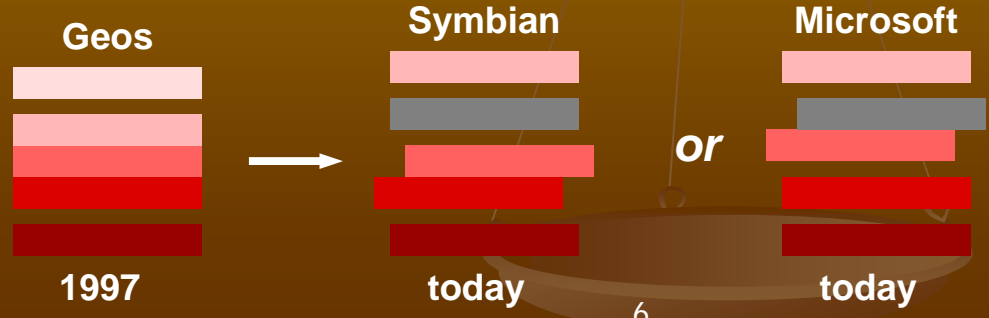
Video Game



PDA



Mobile Phone



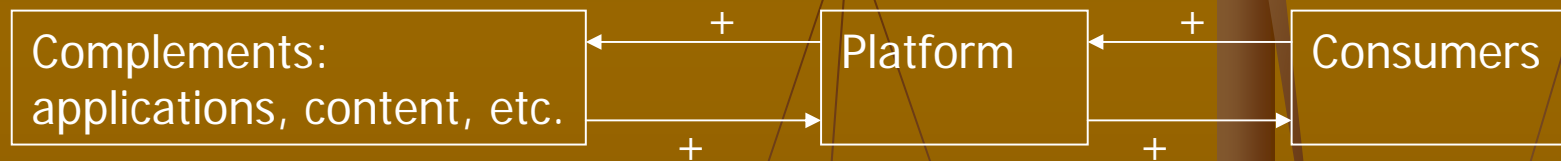
- Network Operator
- Applications
- Software Platform
- Hardware Platform
- Peripherals

Economic forces driving vertical disintegration

- Technological progress: cheaper and faster
 - Benefits of specialization
 - Economies of scale
- Consumer demand for variety and modularity: applications, games, content, etc.
 - Commercial opportunities for third-party vendors

Strategic issues 1

- Multi-sidedness -> positive indirect network effects in adoption -> pricing structure is key



- Examples:
 - OS for computers and CE (Windows, Symbian, Palm) subsidize developers
 - videogame consoles (PlayStation, Xbox) subsidize users
 - media platforms (i-mode, Real) make profits on both sides

Strategic issues 2

Vertical integration of software platform into hardware

- Control over platform/system innovation (Apple, PlayStation, Xbox)

Vs.

- Market expansion through licensing to competing hardware makers (Windows, Palm, i-mode, Symbian)

Strategic issues 3

Vertical integration into complements
(applications, content, etc.)

- Profitability and head-start competitive advantage over rival technologies (Sony, Vizzavi 1999)

Vs.

- Broader variety of complements by relying on the market and no internal conflicts (iPod, i-mode, PlayStation, Vodafone Live)

Platform Openness

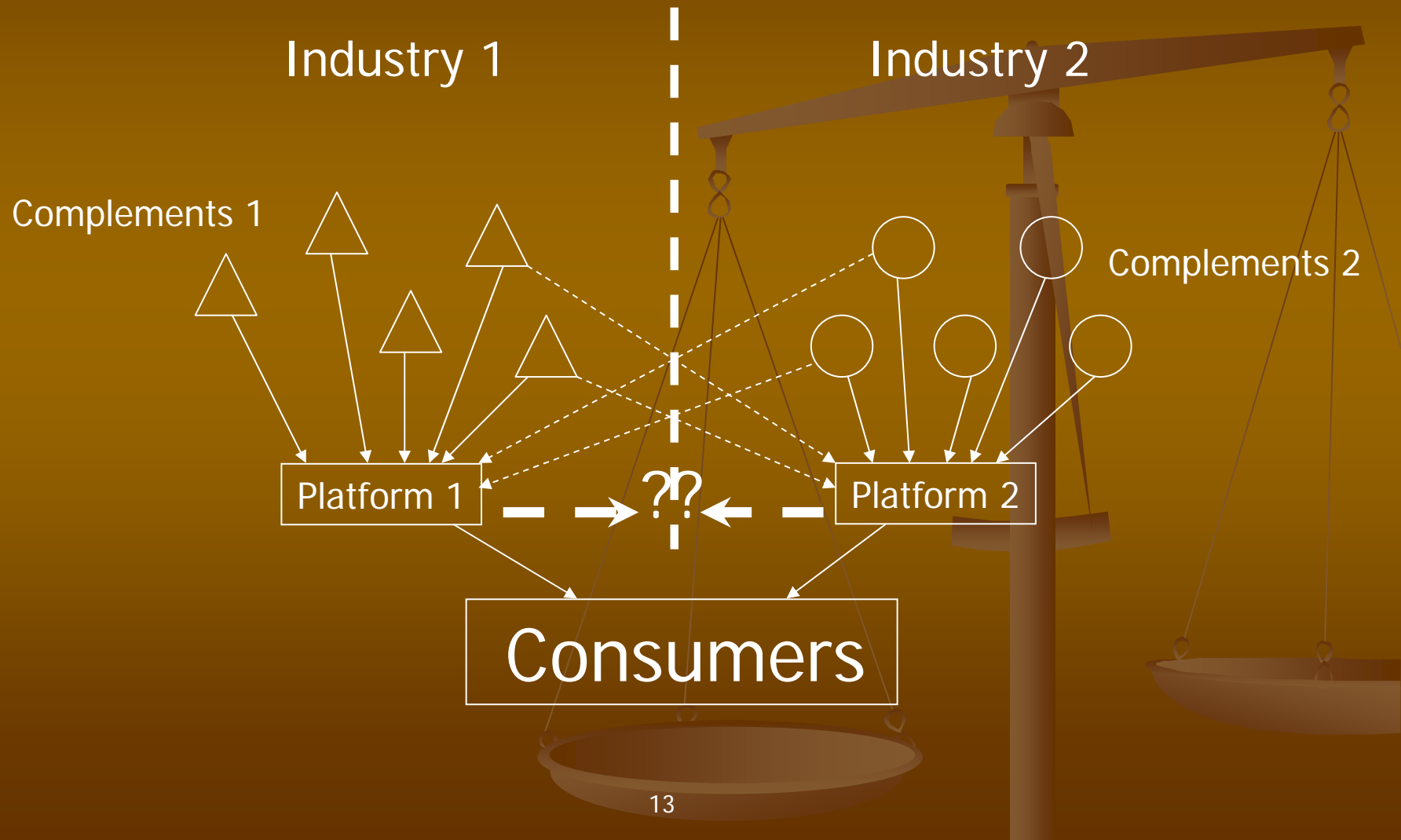
- Open licensing to competing hardware makers (cf. vertical integration above)
- Open policies towards third-party complements providers: variety vs. quality control
- Encourage entry and technology (platform) adoption through open standards vs. making profits by controlling entry (internalizing indirect network effects)

2.

Digital convergence and competitive advantage



Digital Convergence



Examples

1. 3G smart mobile phones vs. PDAs
 - 1 platform dominates (Pac Man collision)
2. DVD player + videogame console (PSX)
 - platforms coexist side by side (symmetric collision)
3. Computer + v.g. console + TV + mobile phone + car navigation system + networks (DIGITAL HOME)
 - result???
 - Microsoft vs. Sony vs. Intel vs. Comcast vs. Apple

Economic forces behind digital convergence

- Platform substitutability/complementarity
- Interoperability
- Consumer preferences (might prefer separate platforms)

Competitive advantage 1

- Commoditization of hardware
 - Pressure from low cost manufacturers (China, Korea)
 - Pressure from adjacent platforms (digital convergence)
 - Being part of a valuable platform is the only way to avoid commoditization: strategic importance of software

=> The value of software technologies relative to hardware is increasing

- Importance of a competitive software industry (an issue for Japan)

=> Competitive advantage and most of the economic value in computer-based industries lies in platforms

Competitive advantage 2

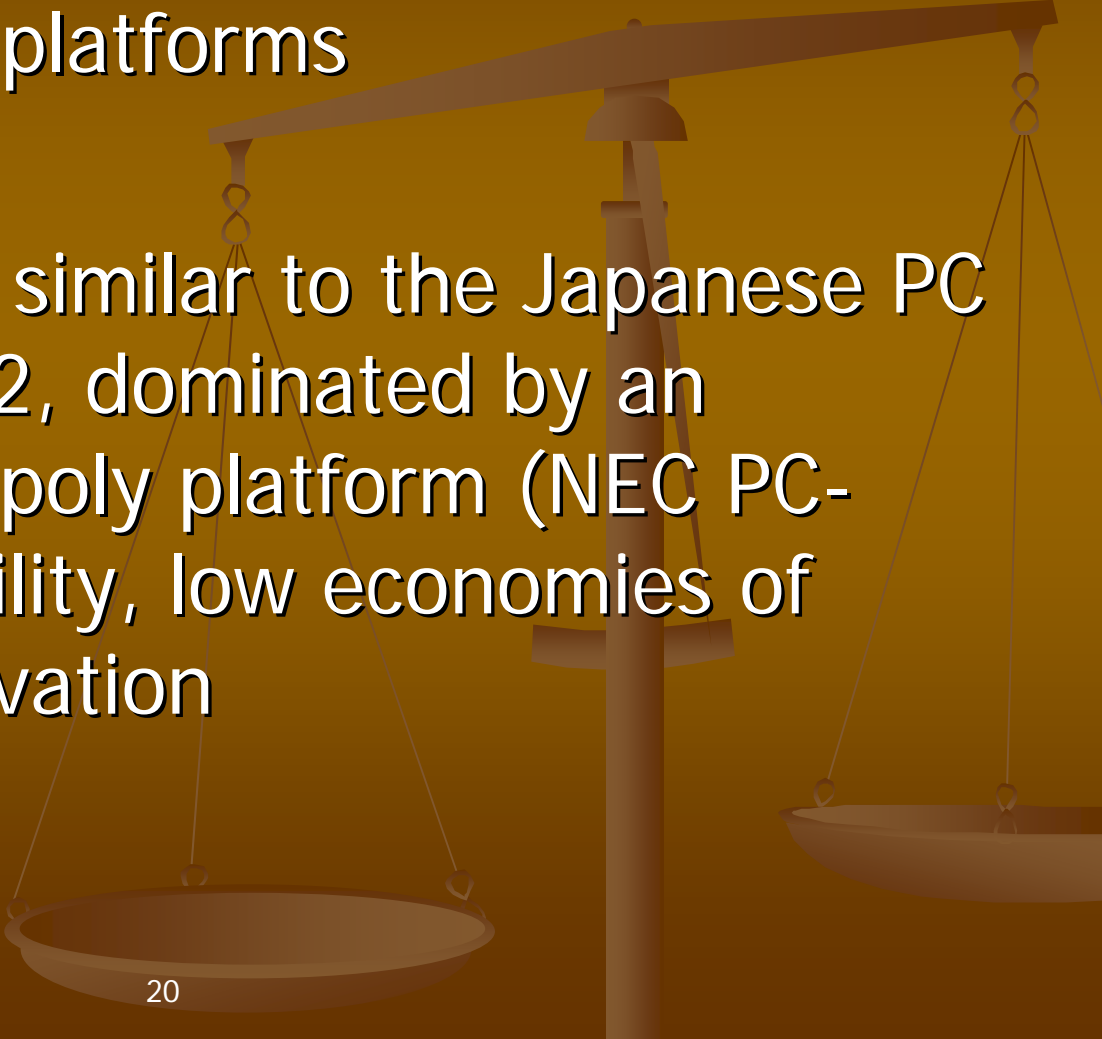
- Vertical integration into applications, games, content, etc. is neither necessary nor sufficient for platform success
 - Ex.: Sony vs. Apple (portable digital media)

Competitive advantage 3

- Digital Convergence: value shift from stand alone performance towards ability to support a variety of digital content, networking and interoperability
 - Business Week (July 2004) top 5 companies for DC: Microsoft, IBM, Intel, Comcast, Samsung
 - 1st Japanese company: NTT DoCoMo (no. 35)



3. Industrial policy

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- Ensure consumers are provided with sufficient variety of digital content and there is seamless interoperability across complementary platforms
 - Avoid situations similar to the Japanese PC industry 1985-92, dominated by an inefficient monopoly platform (NEC PC-98): incompatibility, low economies of scale, slow innovation

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- Standards-setting, coordination, support for cross-industry platforms and joint ventures
 - China · Korea · Japan Open Source Software Alliance: strategic importance in strengthening the competitiveness of software industry and providing cross-industry platforms (ex. CE Linux Forum)
 - Preference for proprietary (closed) platforms (technologies) or open platforms?
 - Key tradeoff: internalization of indirect network effects (i-mode) by proprietary platforms vs. inefficient restriction of innovation (NEC PC-98)

Thank you for your attention.