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Changing the Rules of the Game

The Convergence of Media in the Global Information Economy

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Economic Evolution

- The traditional concept of economic evolution: agriculture to manufacturing to services
- Traditional dichotomy used in analyzing industries and markets **manufacturing vs. services**
- The US economy is now over 80% in services (both GNP and employment); manufacturing is less than 15%; agriculture is less than 3%
- A new dichotomy: **information vs. material** (bits vs. atoms)

The Information Economy

- All industry sectors that address the eventual production of information goods and services
 - Pure information goods: data bases and books
 - Information services: news broadcasts
 - Transactions services: financial services
 - Experiential information goods: music
 - Knowledge based professional services
 - Information transportation: telecommunications
 - Information processing tools: computers

- Studies by Machlup (1967), Porat (1977), Apte and Nath (2004), Choi Rhim Park (2006), Aviles et al. (2006), Apte Karmarkar Nath (2007),

Picturing the Economy

Delivery Form

Products

Services

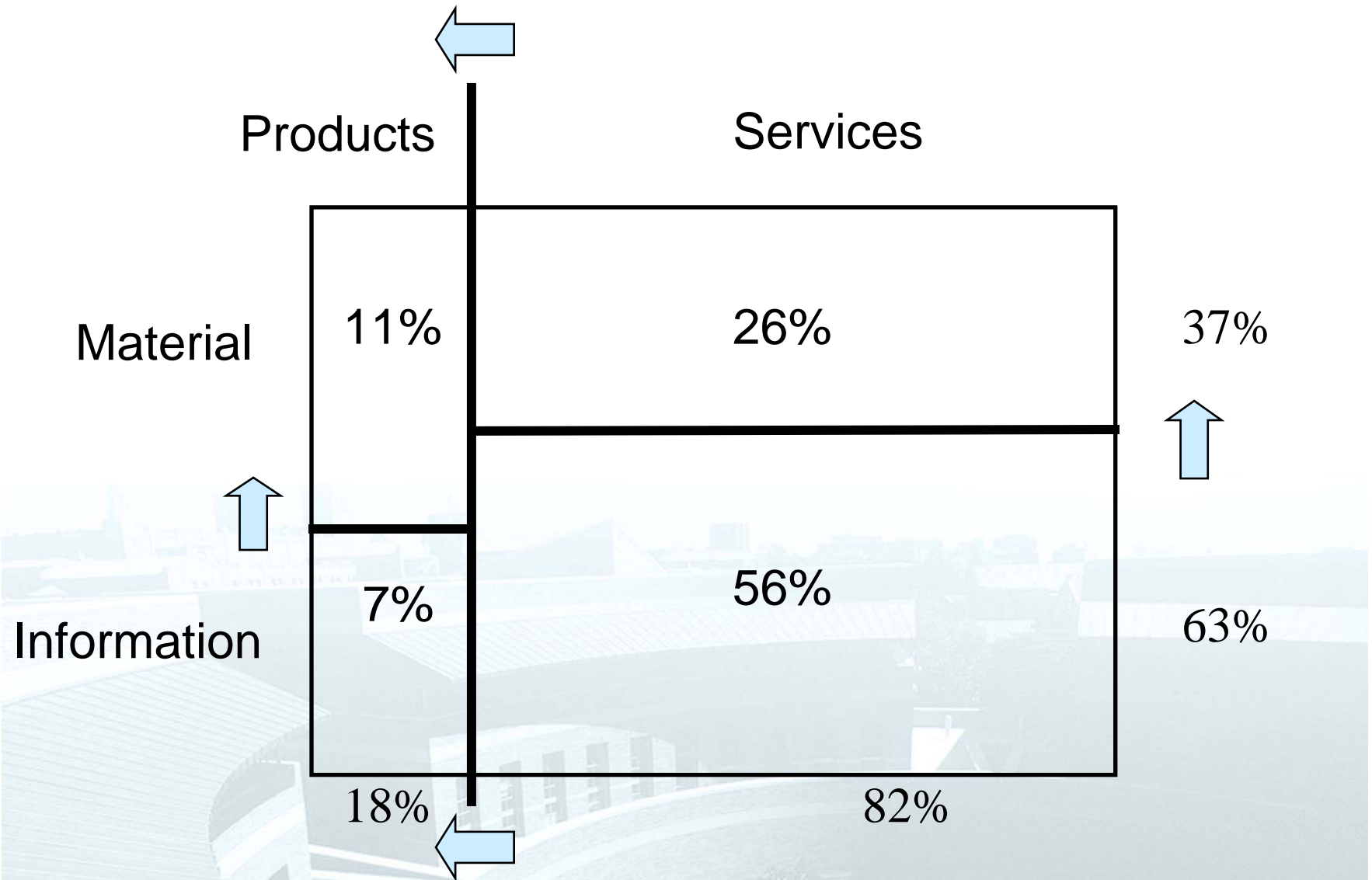
Material

End product

Information

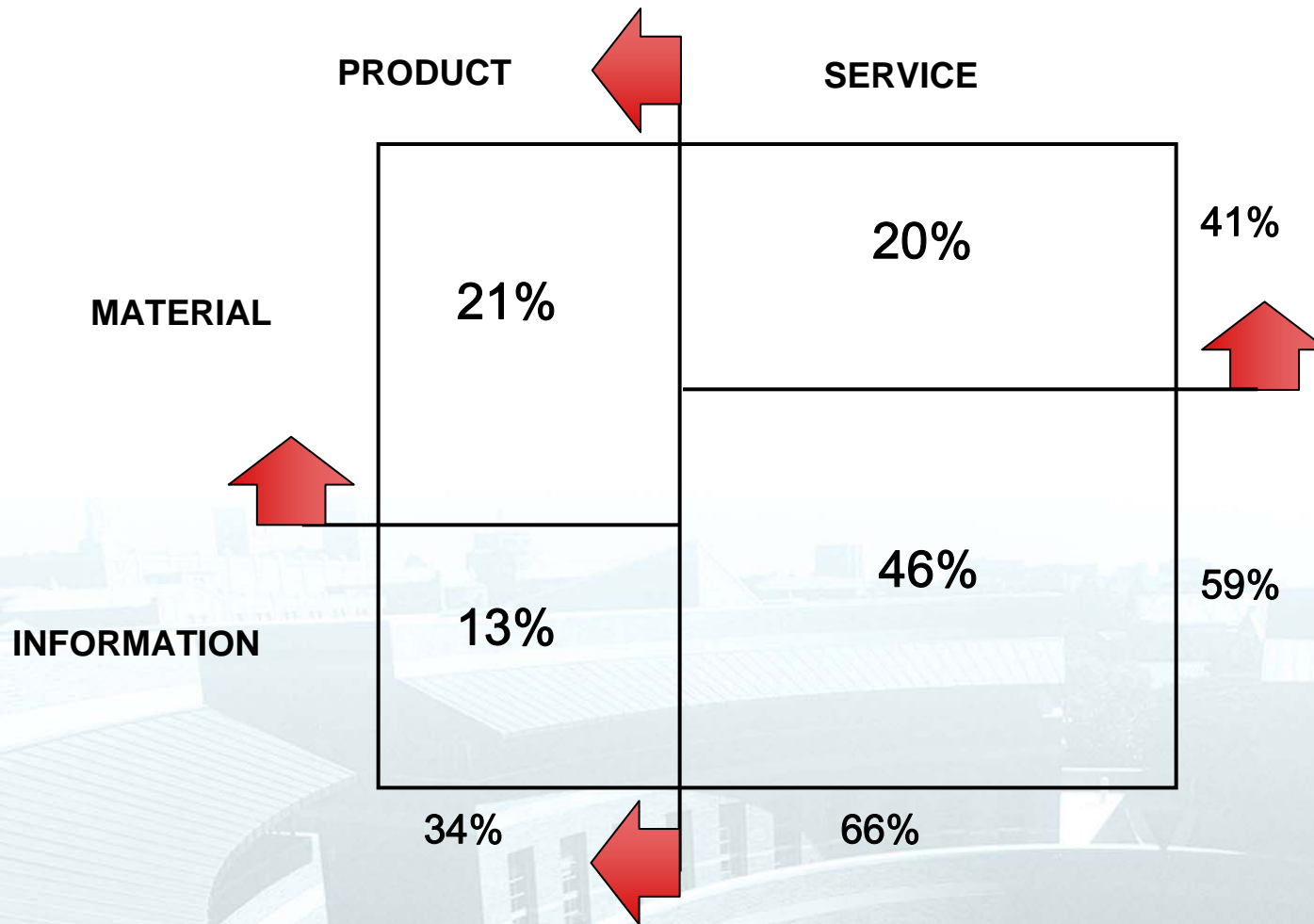
<p>Steel, Cement Automotive Consumer Goods</p>	<p>Transportation Retailing Construction</p>
<p>Computers Books, Magazines Data bases Music CD's</p>	<p>Telecommunications Financial Services News/Information Consulting</p>

US GNP Breakdown (1997 data)



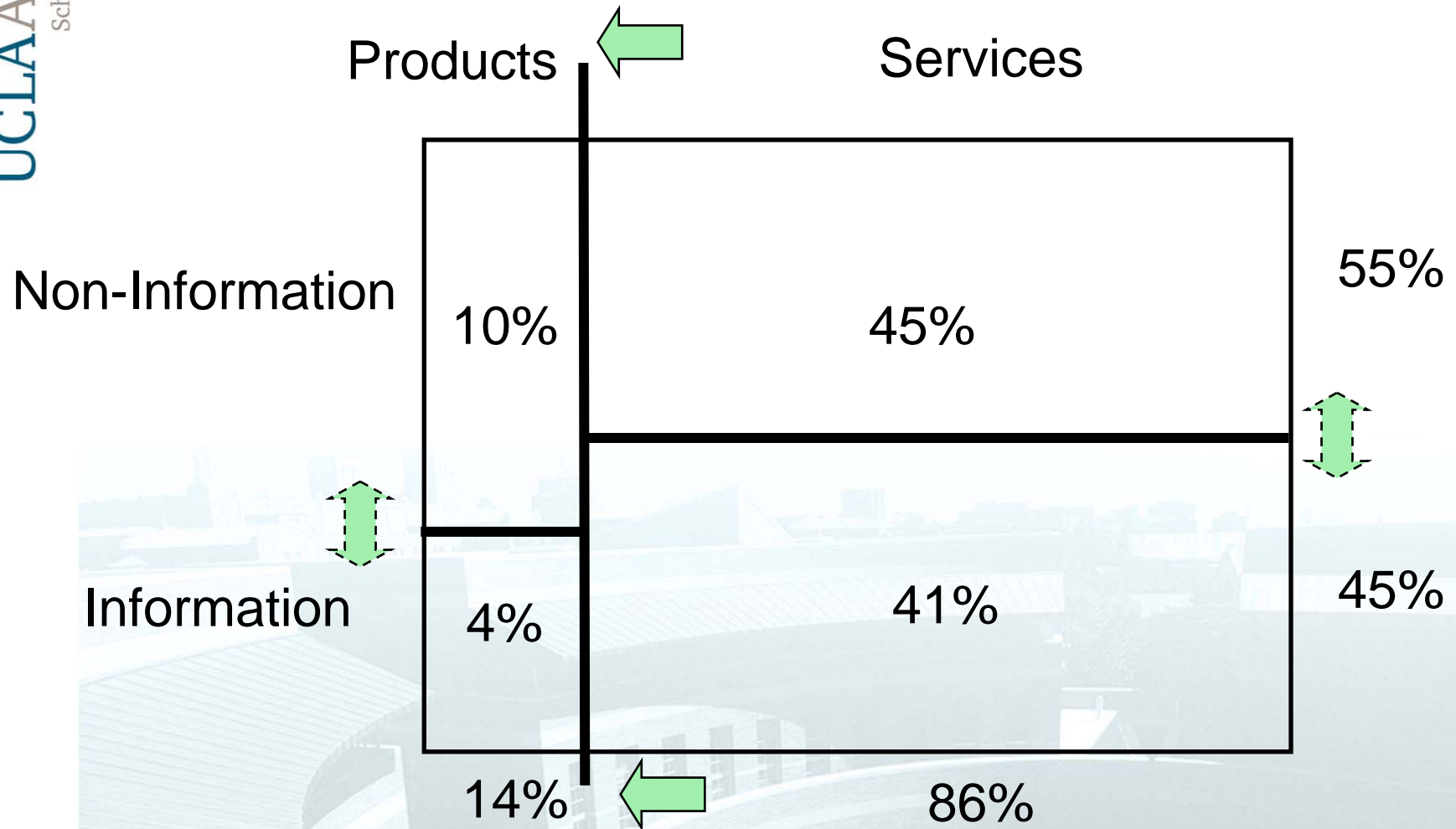
Apte, Karmarkar, Nath, "The Information Economy: Value and Jobs" (2007)

Trends for the S. Korean economy (2000)



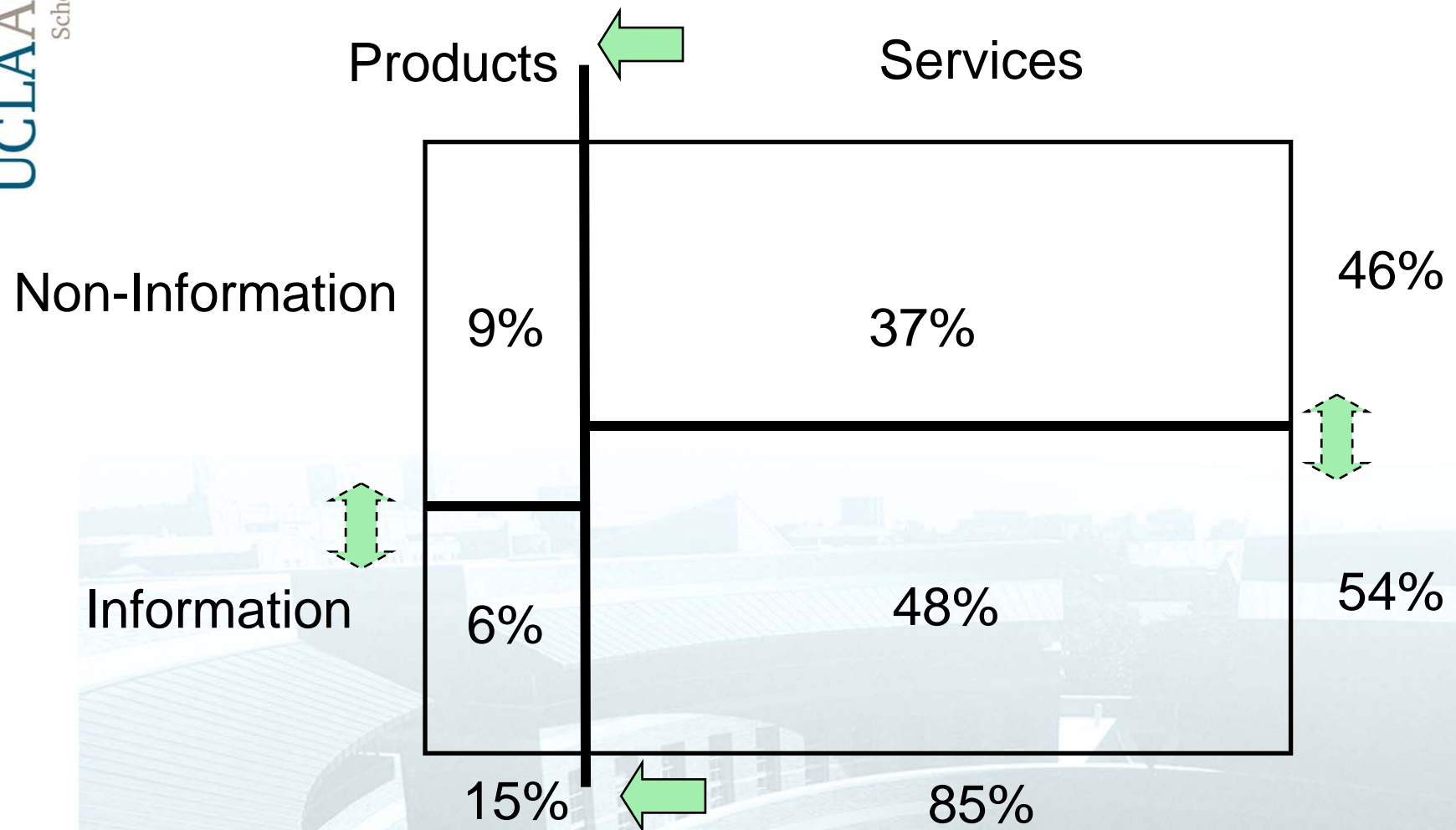
Choi, Rhim, Park, "New Business Models in the Information Economy" (2006)

US Employment at Job Level (1999)



Apte, Karmarkar, Nath, "The Information Economy: Value and Jobs" (2007)

US Wage Bill Distribution (1999)



Apte, Karmarkar, Nath, "The Information Economy: Value and Jobs" (2007)

US Average Wage \$/yr (1999)

	Products	Services
Non-Information	27,061	26,039
Information	48,793	36,629

Apte, Karmarkar, Nath, "The Information Economy: Value and Jobs" (2007)

The New Economy

- Agriculture and manufacturing continue to shrink in relative terms, while services continue to grow
- True for all the large economies at all stages of development
- The current trend: shift to information
- The US is now an “information economy”
- **Information services (consumer, industrial) already dominate the US economy**
- Largely true for other developed economies

Drivers

- Historically
 - High productivity growth in manufacturing
 - Low productivity in services

- Current: a change is underway
 - Technology: especially information technologies
 - The “industrialization” of services
 - The growth of service productivity and competition
 - The impact on jobs and employment
 - Globalization of information and service chains
 - Massive change in many industry sectors

Service Transformation

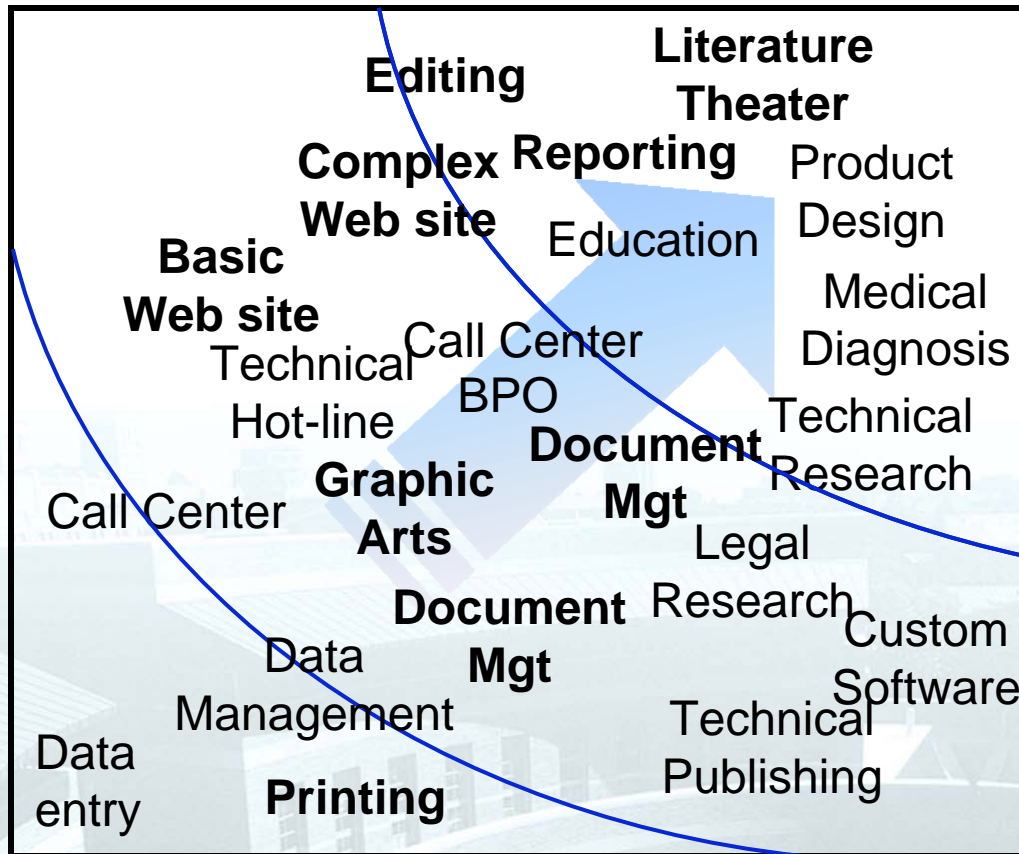
- Technology driven change
- Looks like manufacturing in the 70's
 - **Automation**
 - **Out-sourcing and virtualization**
 - **Off-shore sourcing**
 - **Process reengineering**
 - **New processes and new services**
 - **Self service** (shift processes to consumers)
- All driven by
 - **Global diffusion and competition**

The Global Information Economy

- Global information services trade is increasing
- So is global competition
- Outsourcing and off-shore provision
- Simple, commodity activities globalize first (key data entry)
- Transactions and “logistics” are next (telecommunications, banking)
- Then more complex, specialized tasks

IT-enabled Services

**Custom
Specialized
Interactive
Cultural**



**Commodity
Standard
Technical
Off-line**

Simple

Complex

Patterns of Globalization and Trade

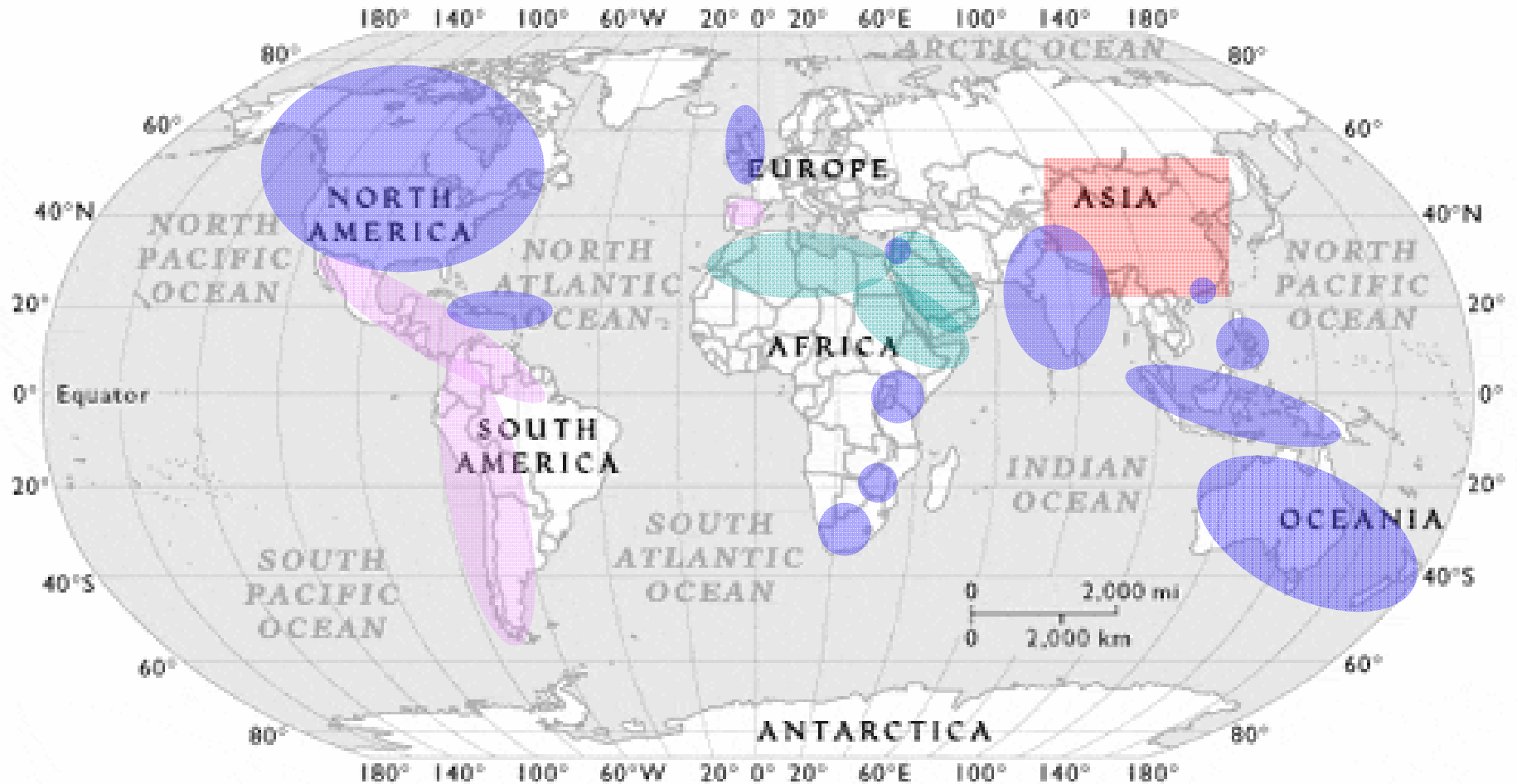
- The topography of information trade is not dependent on oceans and mountains
- Rather, it is defined by language, conventions, culture, and relationships
- In industrial services the languages are Java, C++; the conventions are protocols and standards
- Imbedded software and services will follow manufacturing (e.g. control software, manuals)
- For consumer products and services, language, culture and history play a role
- The colonial past is reflected

Most Widely Spoken Languages

Language	Approx. number of speakers
1. Chinese (Mandarin)	1,075,000,000
2. English	514,000,000
3. Hindustani	496,000,000
4. Spanish	425,000,000
5. Russian	275,000,000
6. Arabic	256,000,000
7. Bengali	215,000,000
8. Portuguese	194,000,000
9. Malay-Indonesian	176,000,000
10. French	129,000,000

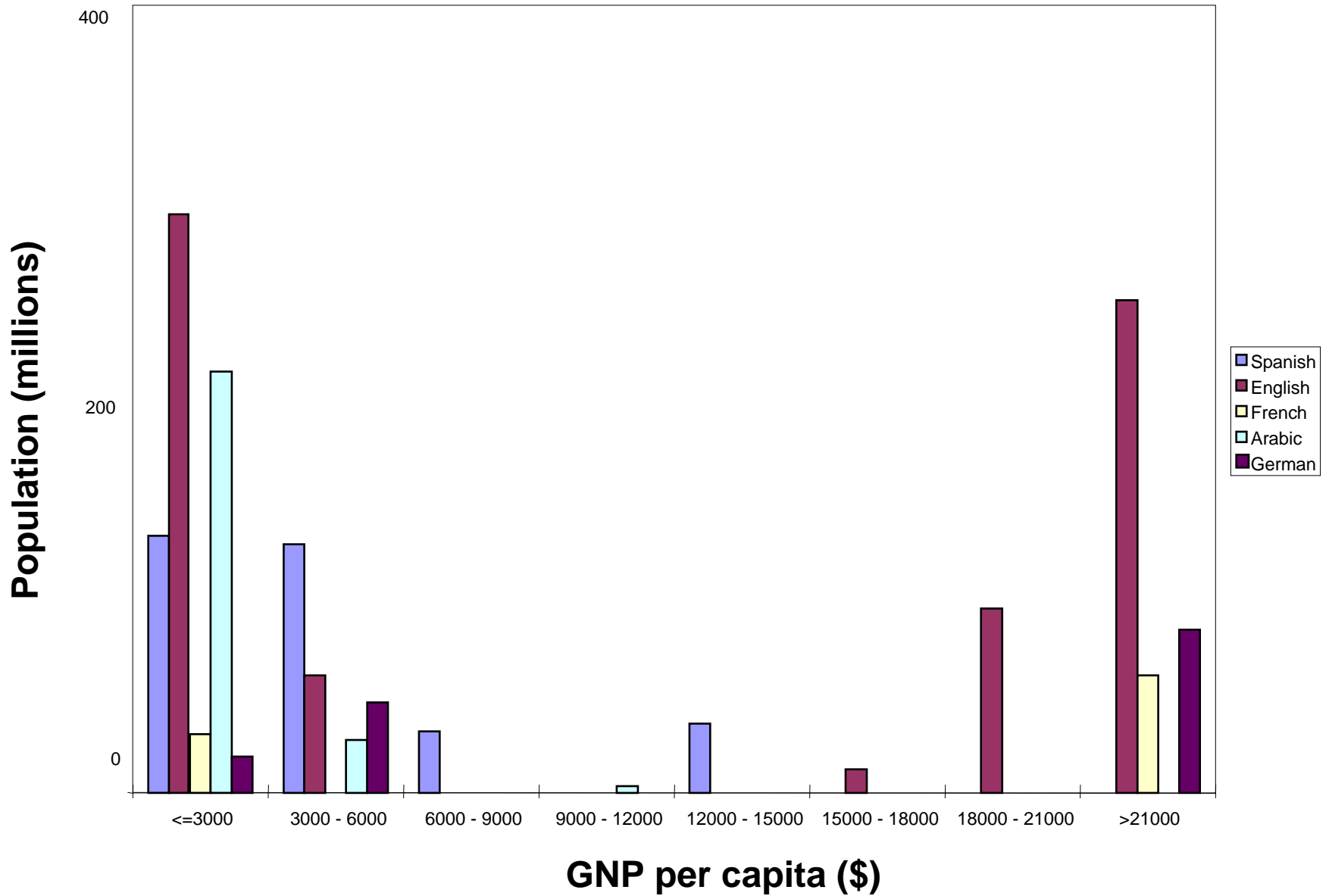
Source: Ethnologue, 13th Edition and other sources.

English / Spanish Arabic & Chinese Language Footprints

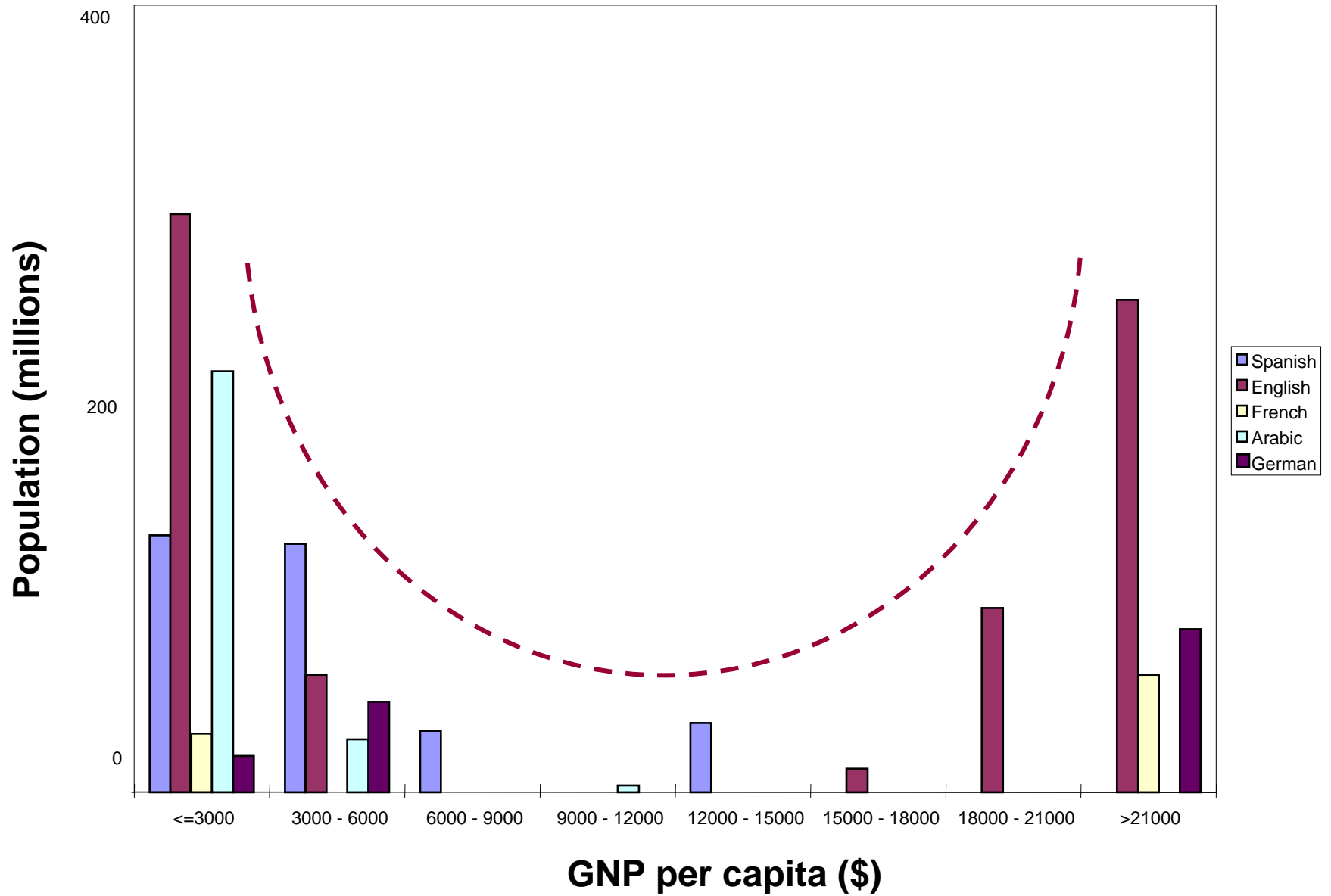


It's Not a Flat World

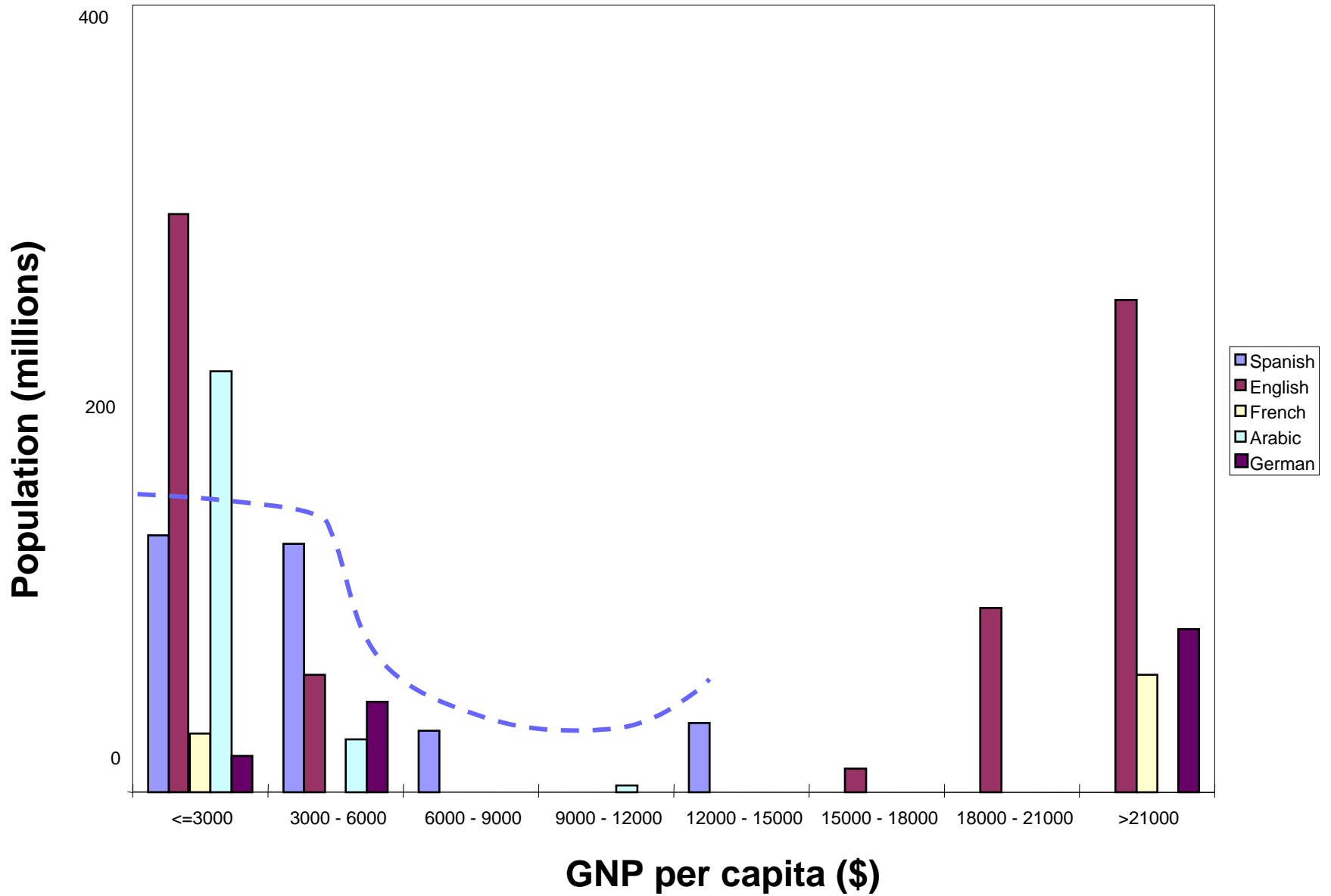
(GNP per capita vs. Population)



English: Highly Bi-modal



Spanish is not as extreme



Globalization of Services

- Increasing degree of globalization
- Linguistic/cultural patterns, colonial history
- Largest linguistic markets:
 - **English (open)**
 - Chinese (localized)
 - Spanish (open)
 - European languages (less capacity at lower end)
 - Arabic, Russian, Indian, Asian (localized)
- Simpler commodity services globalize first
 - Logistics oriented; telecom
 - Basic services: search
 - Transaction oriented: banking and financial

The New Global Economy

- The shift to the “information economy”
- Information services: the key sector
- Information commercialization is advancing from data to knowledge and experience
- New challenges for service management: old experience doesn't work
- Substantial impacts on globalization, trade, industry structure, and employment
- The structure of information services trade follows linguistic and colonial patterns

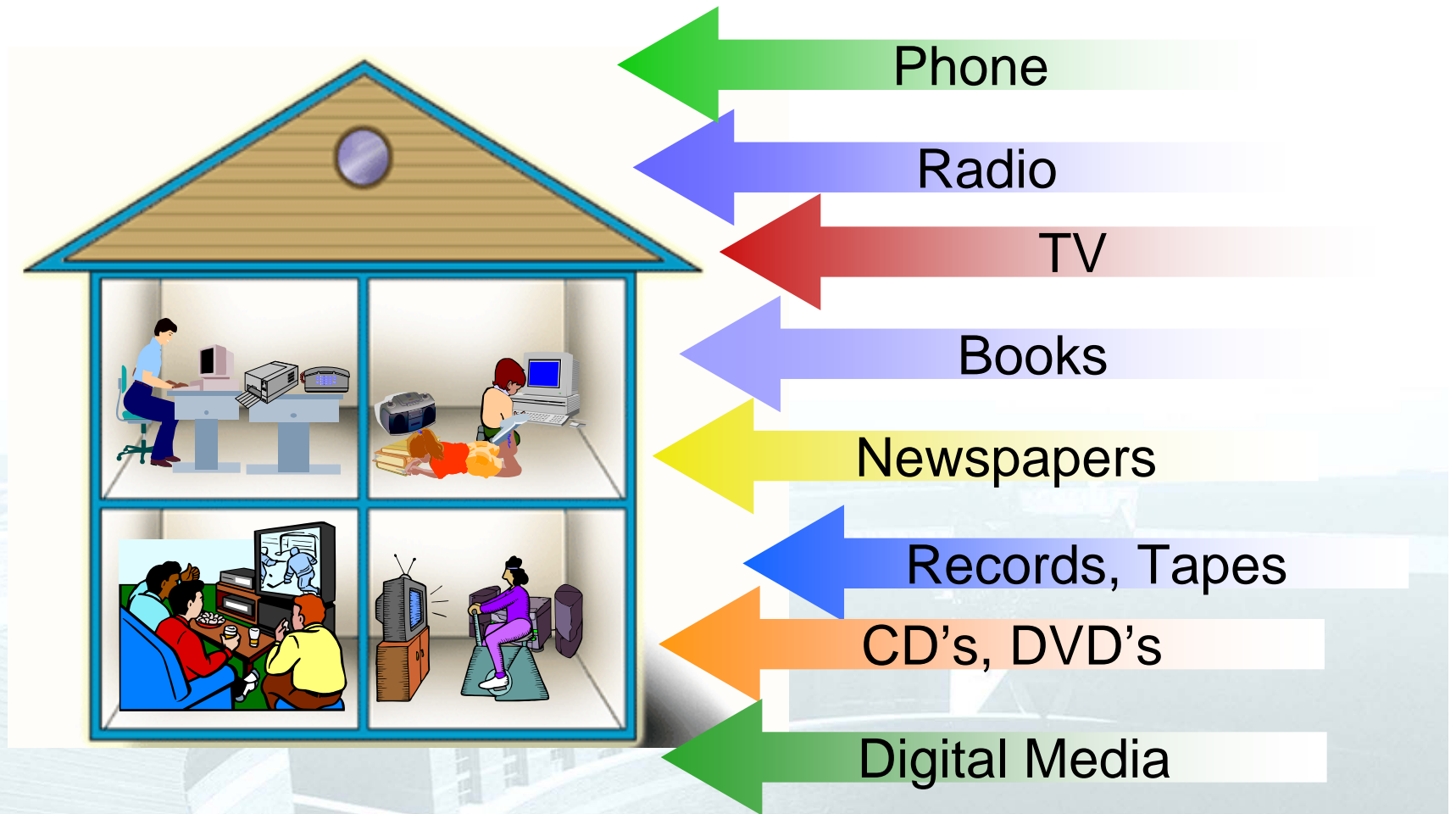
Impact on Industry Sectors

- Information intensive sectors are affected
 - Telecommunications, broadcasting
 - Financial services
 - Media, publishing, communications
 - Consumer services
 - Business services, education
- Technology drives “convergence”
- Changes in the information infrastructure
- Cause restructuring of information chains (from capture and creation, to consumption)

Convergence

- Convergence
 - in form: digitization
 - in transport and logistics
 - in processing tools and methods
 - in appliances and devices
 - in services and providers
 - in use patterns

Information to the Home

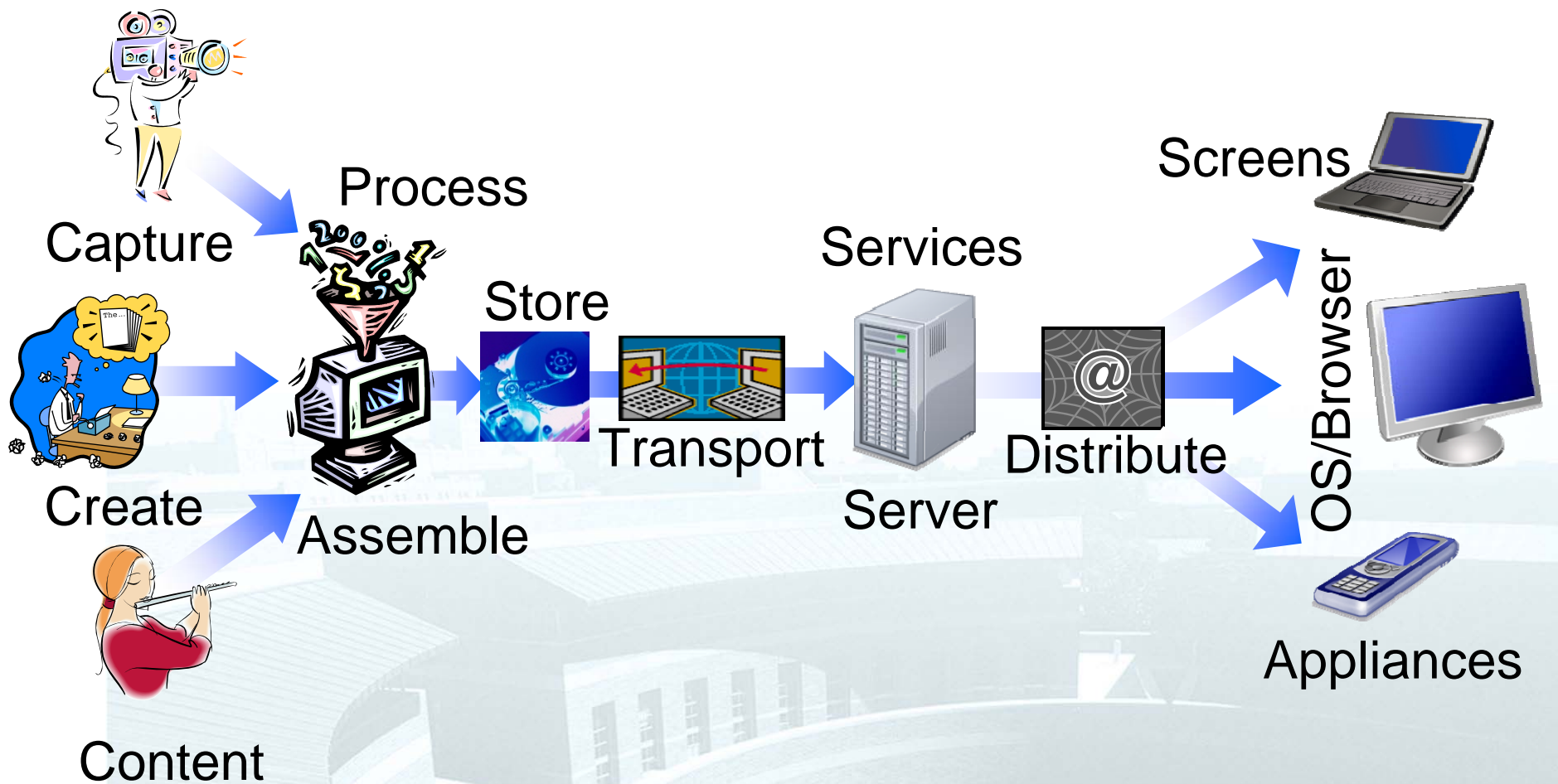


Convergence in Logistics and Delivery



Music
News
Information
Broadband Education
Games
Financial
Transactions

Converged Logistics (forward links)



The Consequences

- Disrupted sectors and business models
- De-integration of information chains (verticals)
- Horizontal (lateral) integration
- New product and service forms
- Changes in consumer behavior; new segments
- New sources of value, difficulty of capture
- Changed basis for competition
- The battles for the head and the home

Which Players Win?

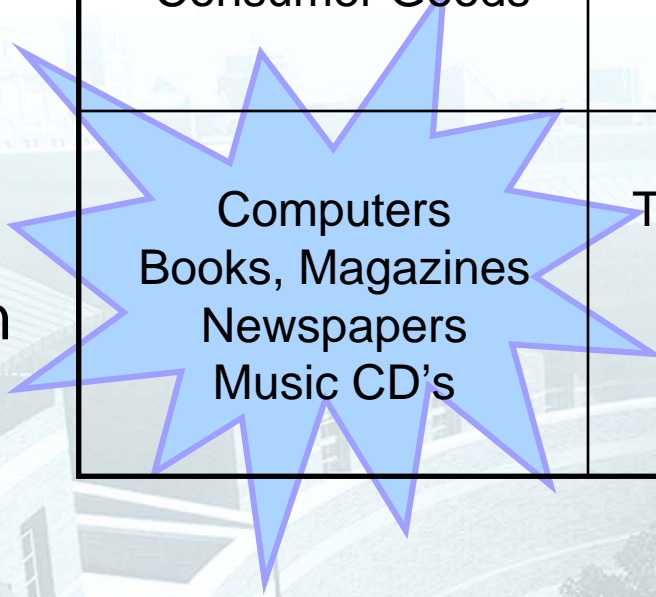
- Content creation & capture
 - Authors, musicians, artists
 - Camera crews, videographers
- Processors
 - Studios, printers, web page builders
- Aggregators and Assemblers
 - Newspapers, magazines, TV, Radio
- Storage and Transporters
 - Telecommunications
 - Physical media distribution
- Servers, B2B services
 - Hosting, caching, page serving
- Consumer services
 - Amazon, eBay, Google, Yahoo, MSN, Expedia, Netflix, YouTube
 - Newspapers, magazines, TV, Radio
- Distribution
 - Internet, Web, YouSendIt, MediaMax, VPNs, ECN's
- O/S, browsers
 - MS IE, Firefox, Symbian, proprietary operating systems
- Appliances and screens
 - Nokia, Sony, Apple,

Not yet clear

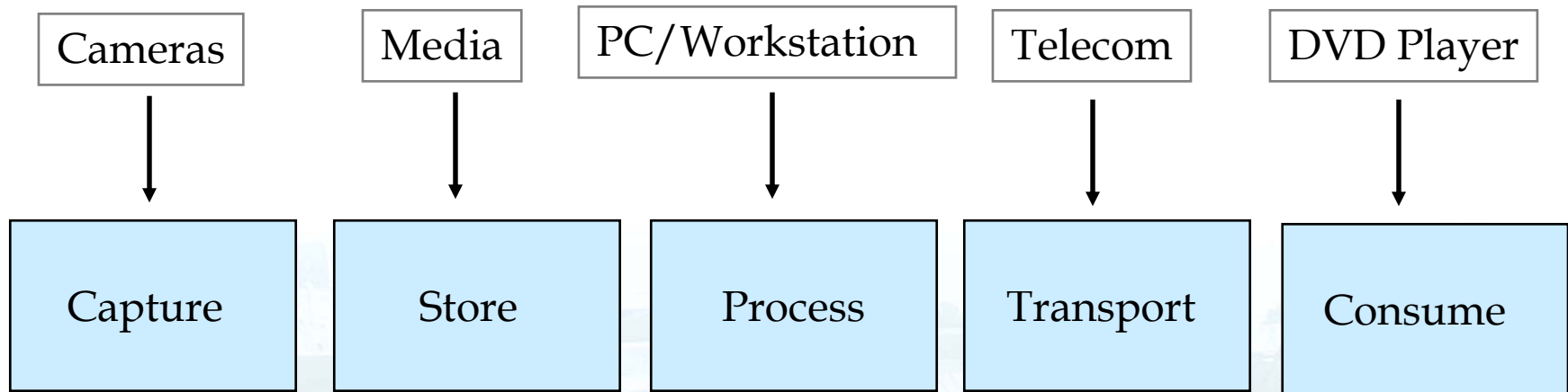
- Not hardware or simple B2B services
 - Overcapacity, commoditized
- New technologies (MediaFLO phone cast)
- Consumer services have built brands
 - eBay, Amazon, Google, Yahoo, iMode
 - Search-and-match or value-added?
- Screens near the head and in the home
 - Sony, Apple, Nokia, Samsung
- Operating systems or Browsers?
 - The fight continues

Information Products

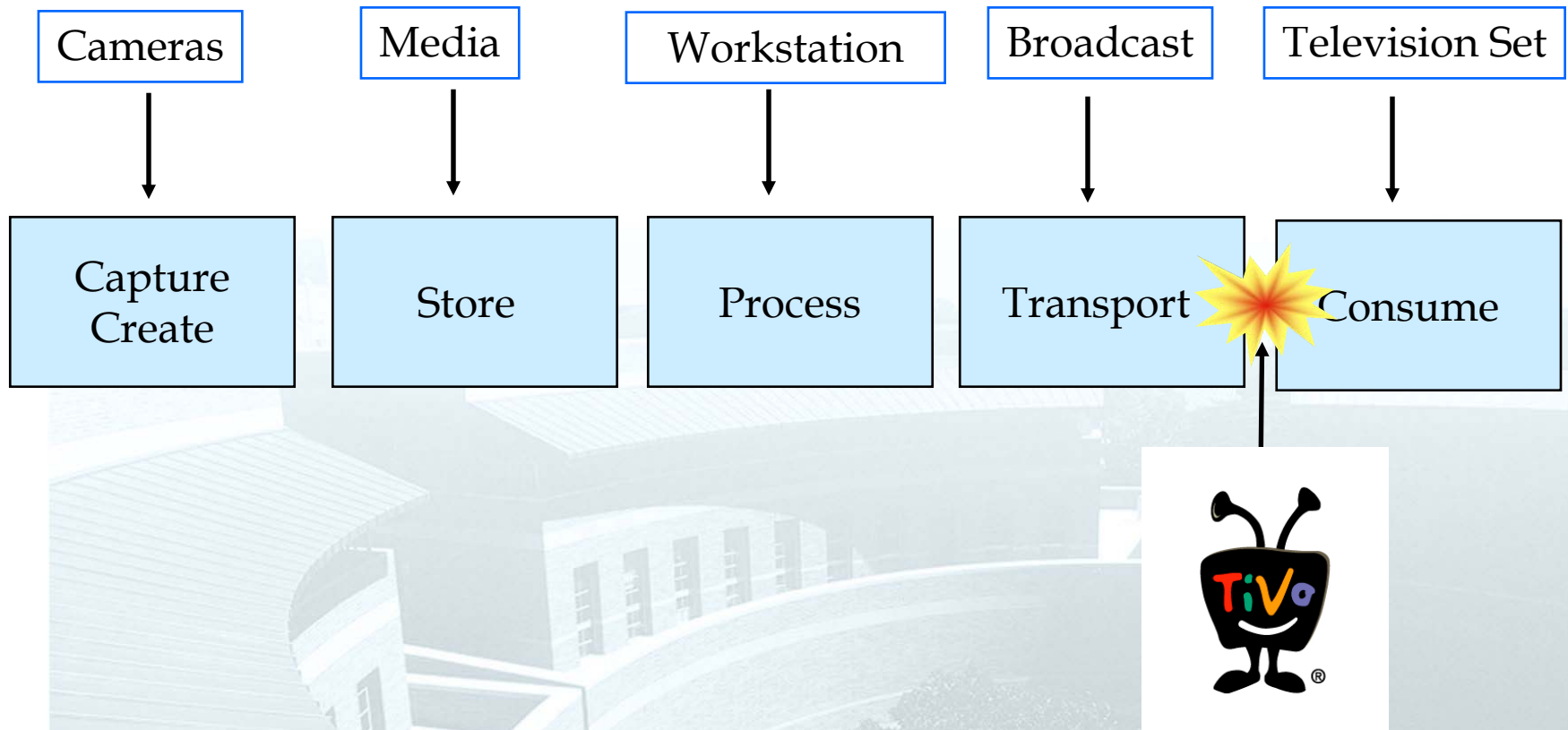
	Products	Services
Material	Steel, Cement Automotive Consumer Goods	Restaurants Retailing Construction
Information	Computers Books, Magazines Newspapers Music CD's	Telecommunications Television Education Consulting



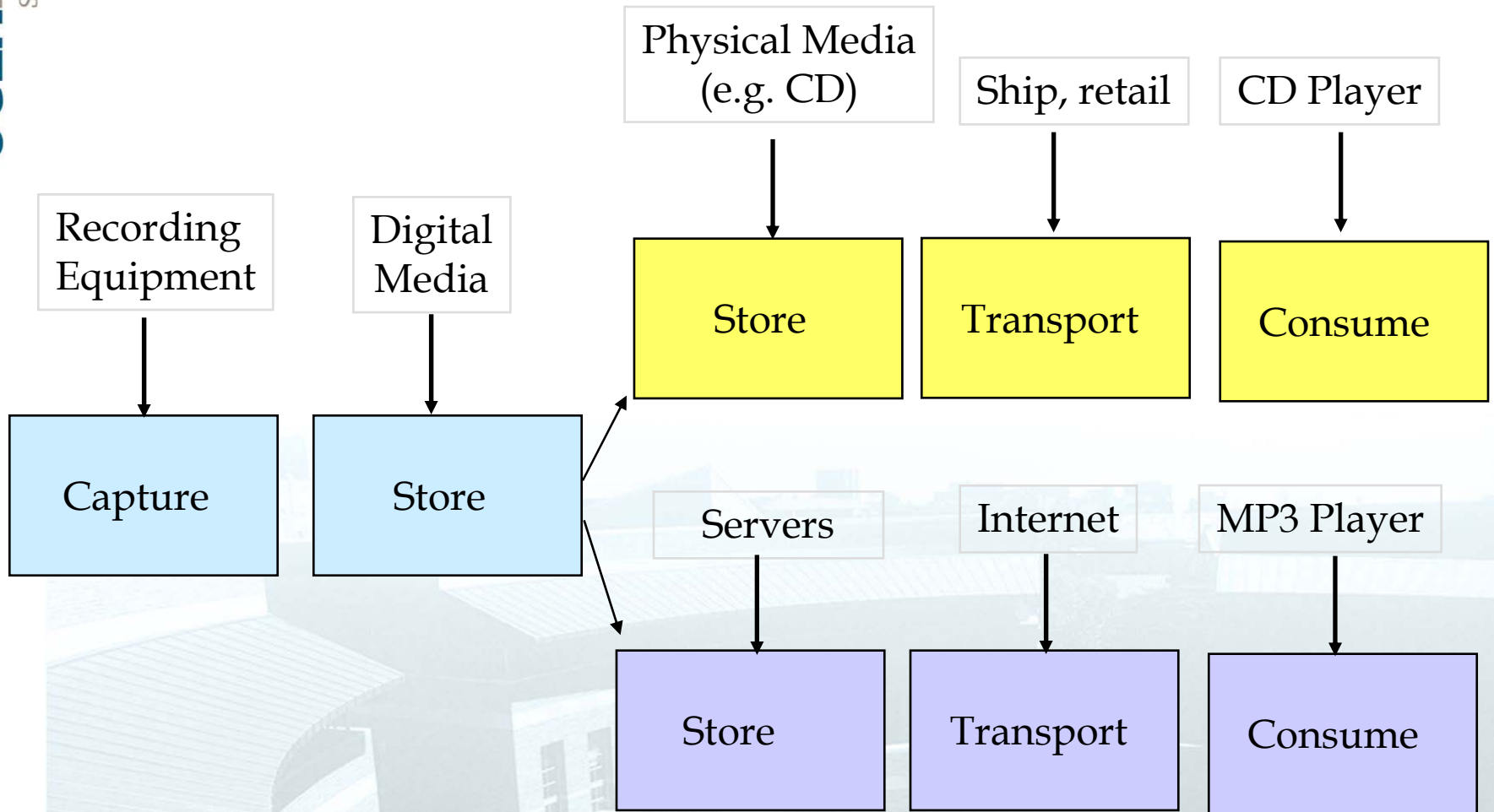
Technology in Information Chains



DVR's Threaten TV



Music Distribution



Rethink Business Models

- DVR's could destroy traditional broadcasting
- Change from service to a product like chain
- Recall that TV broadcasting changed delivery of video product --- and almost destroyed movies (though no one seems to know that)
- Product economics: P2P and theft problem is huge for movies
- New models? Changed video products, different revenue mechanisms, bundling

Honey I shrunk the Form Factor

- Live performances
 - Large stage, centralized, 3 hours
- Movies
 - Large screen, centralized, 1.5 – 2 hours
- TV
 - 13" - 60", distributed, 22 minutes
- Web video
 - 10" – 24", distributed, 1 – 30 minutes
- Podcast, phone cast
 - Small screens, distributed, mobile, 1-5 minutes

Example: Consumer Imaging

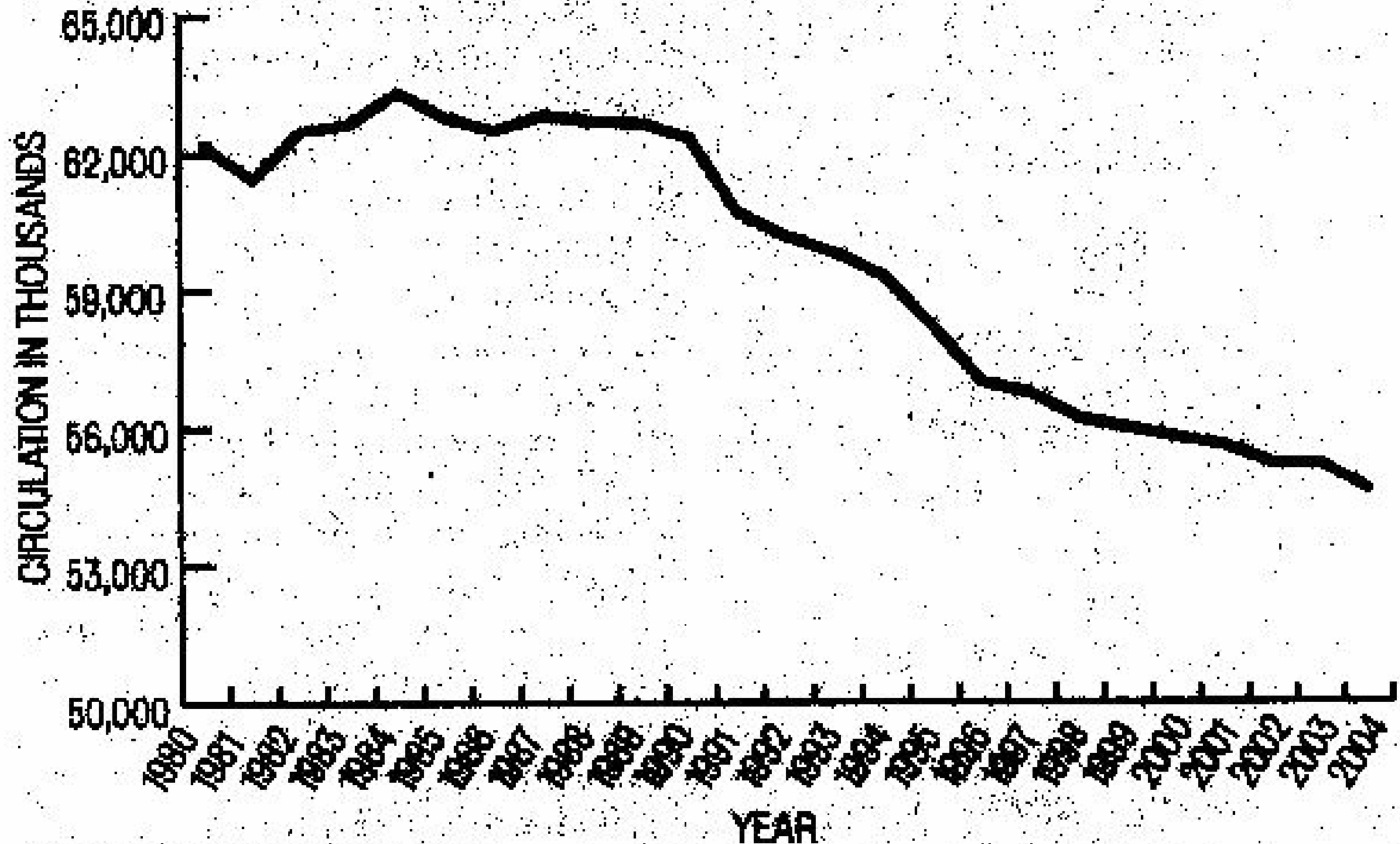
Capture	Film, Camera	Digital camera
Transport	Film	Disk, card
Process	Photofinisher	Software, PC
Archive	Photo album	Digital Media
Transport	Mail photo	Online or batch
Display	Photo	Screen, print

Reconstruction of Info Product Chains

- Logistics transformed by digital distribution
- Traditional distribution dominance is threatened (publishing, newspapers, TV)
- First copy, second copy economics threaten IP value (P2P barter, copying, and theft)
- Appliances, services influence distribution (Apple, iMode, Sony, SK Telecom)
- **Products morph into services, and v.v.**

NATIONAL CIRCULATION OF DAILY NEWSPAPERS

After increasing through the mid-1980s, daily newspapers have experienced a steady decrease in circulation nationwide since 1988.



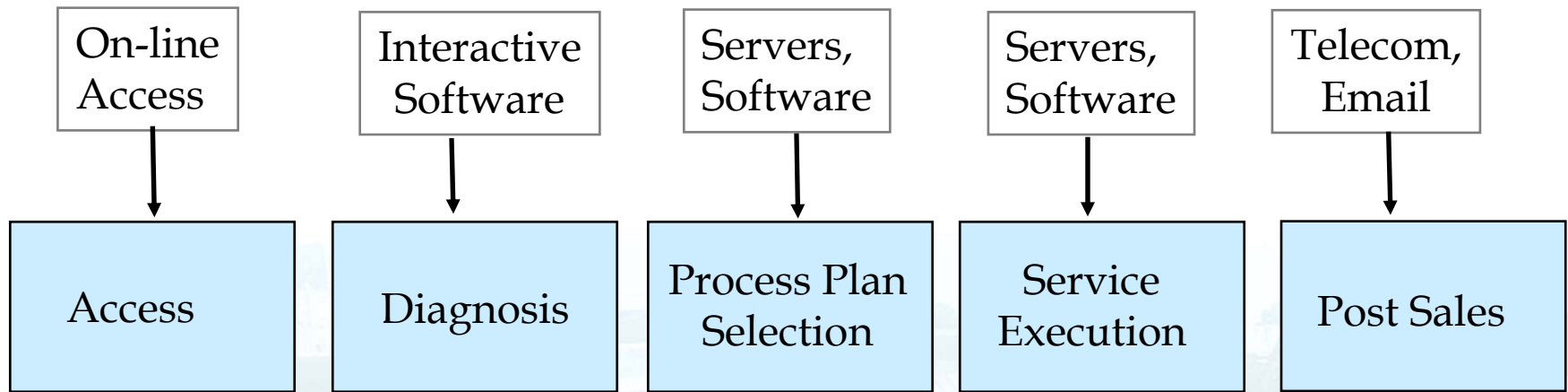
SOURCE: Newspaper Association of America

Information Products

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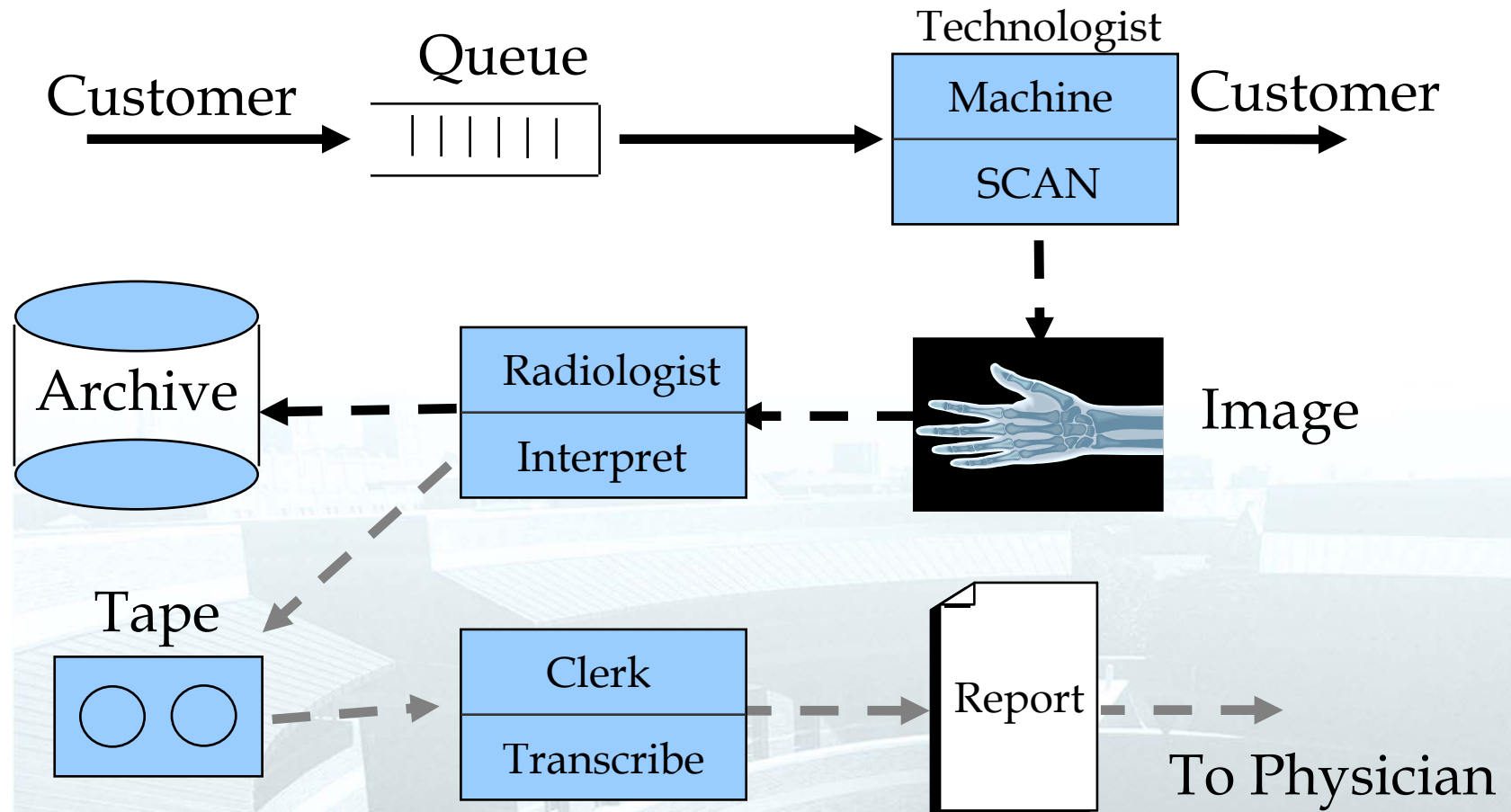
Technologies in Information Services



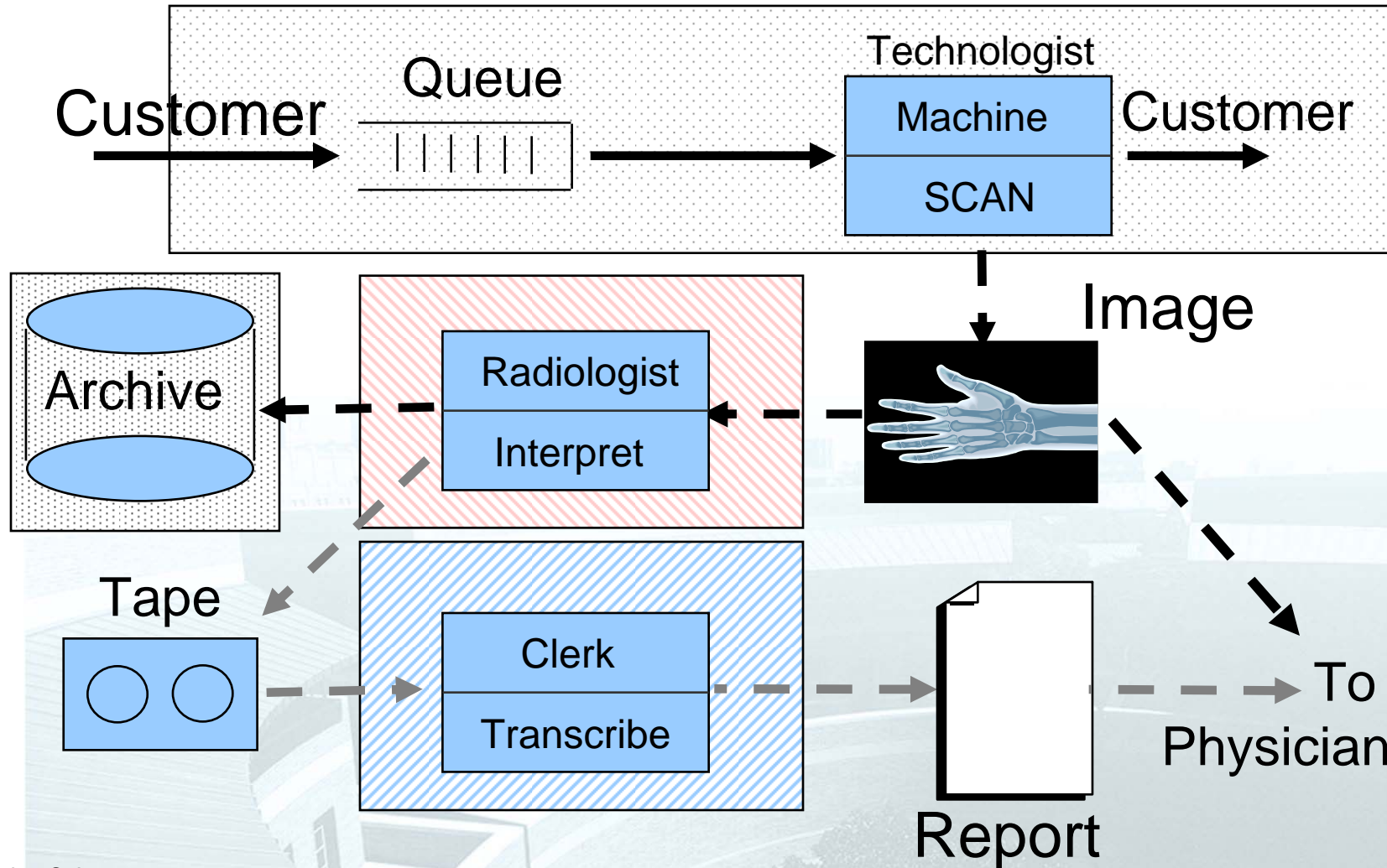
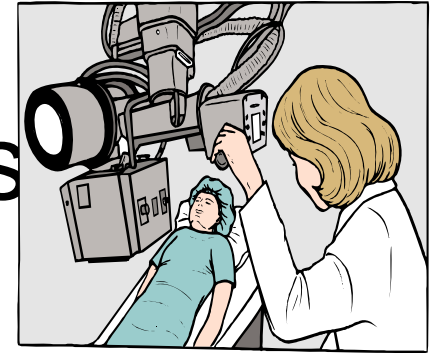
Retail Banking Example

	Traditional	Recent past	Future
Access	Branch	ATM	Web, phone, PDA
Diagnosis	Teller	ATM and self	Web site and self
Process Menu	Teller, script	Fixed menu	Flexible, adaptive
Process selection	Teller and customer	Customer	Customer controlled
Process execution	Teller	ATM (local)	Multiple sites, chains
Exceptions	Teller, supervisor	None	Limited, adaptive
Sales, cross selling	Minimal	Rigid, repetitive	Customized, learning

Diagnostic Imaging



Decoupled Processes



Deconstructing Diagnostics

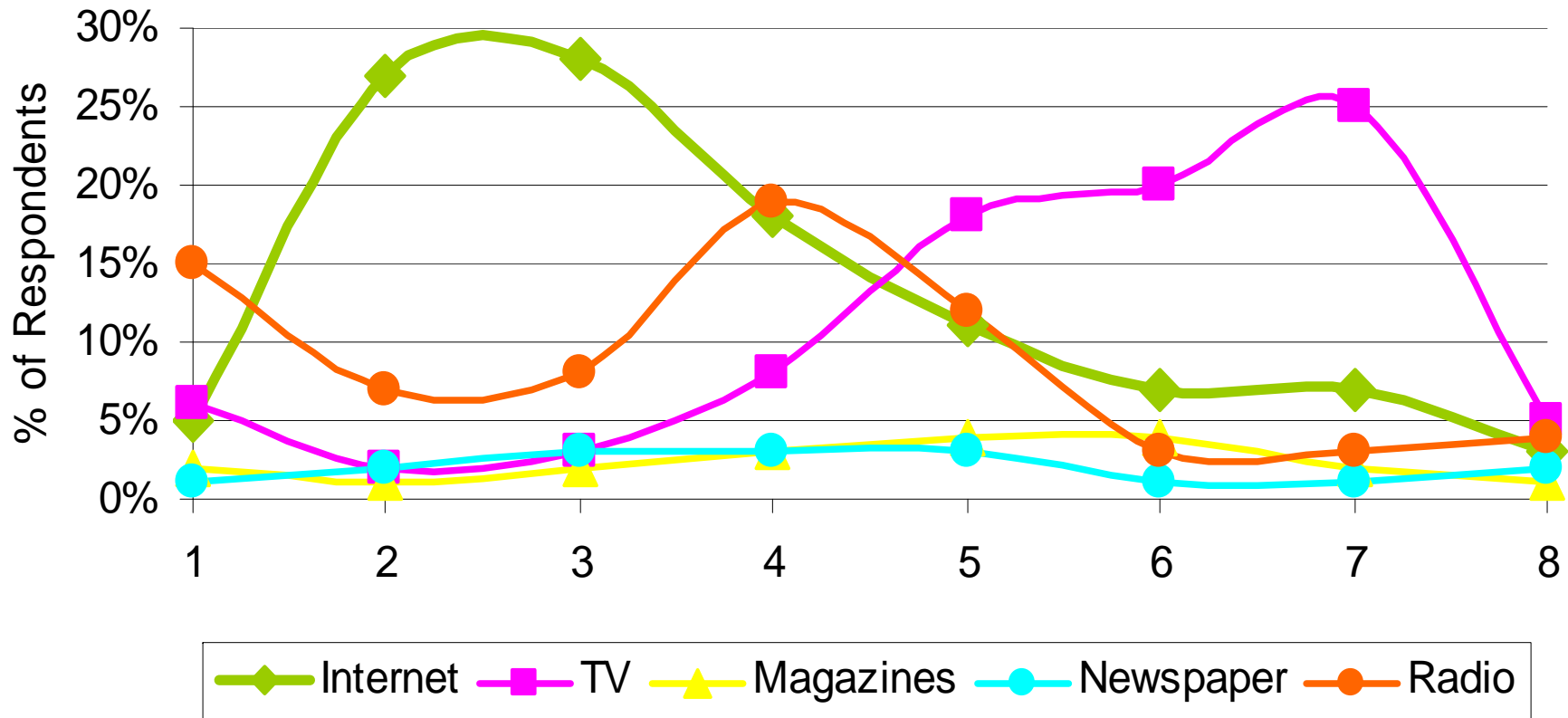
- Outsourcing of scans – being done
- Outsourcing of diagnosis – being done
- Automation of diagnosis? Coming
- Off shore diagnosis? Starting
- Off shore, outsourced transcription – done
- Digital distributed archiving
- Loss of specialization? Referring physicians can read the images

Four Screens

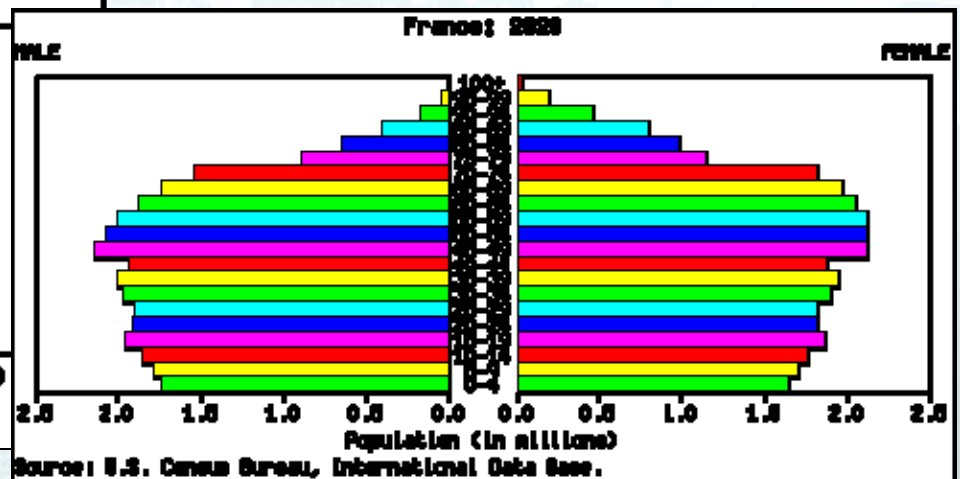
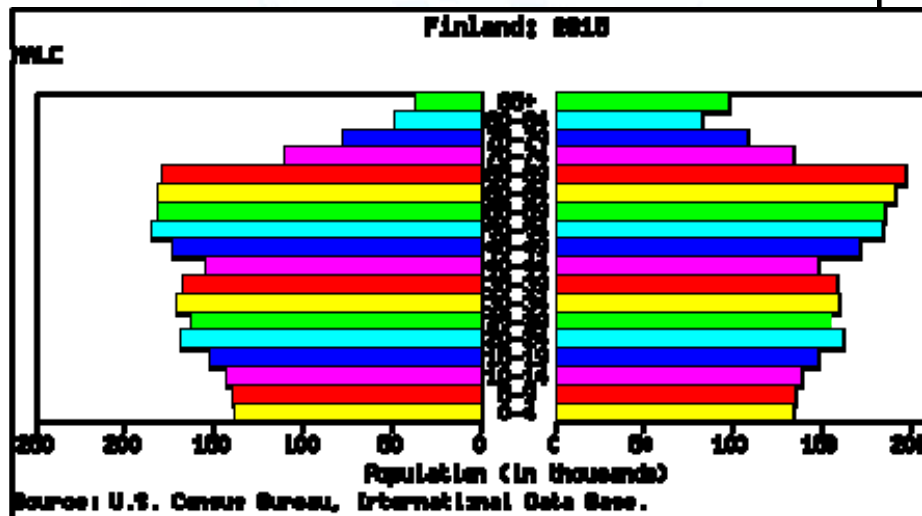
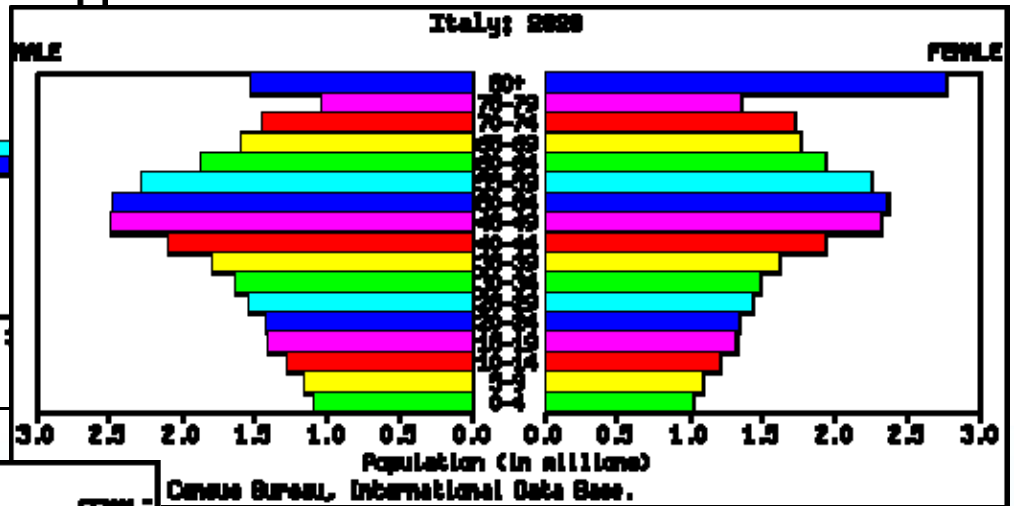
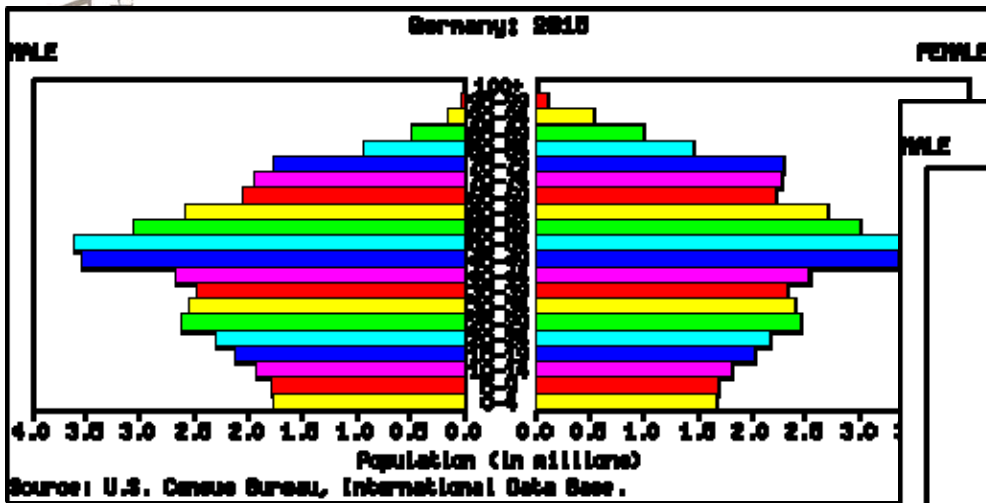
- Cell Phone, PDA
- Laptop
- Workstation
- Home theater (multiple screens)

Behavior by "Day-part"

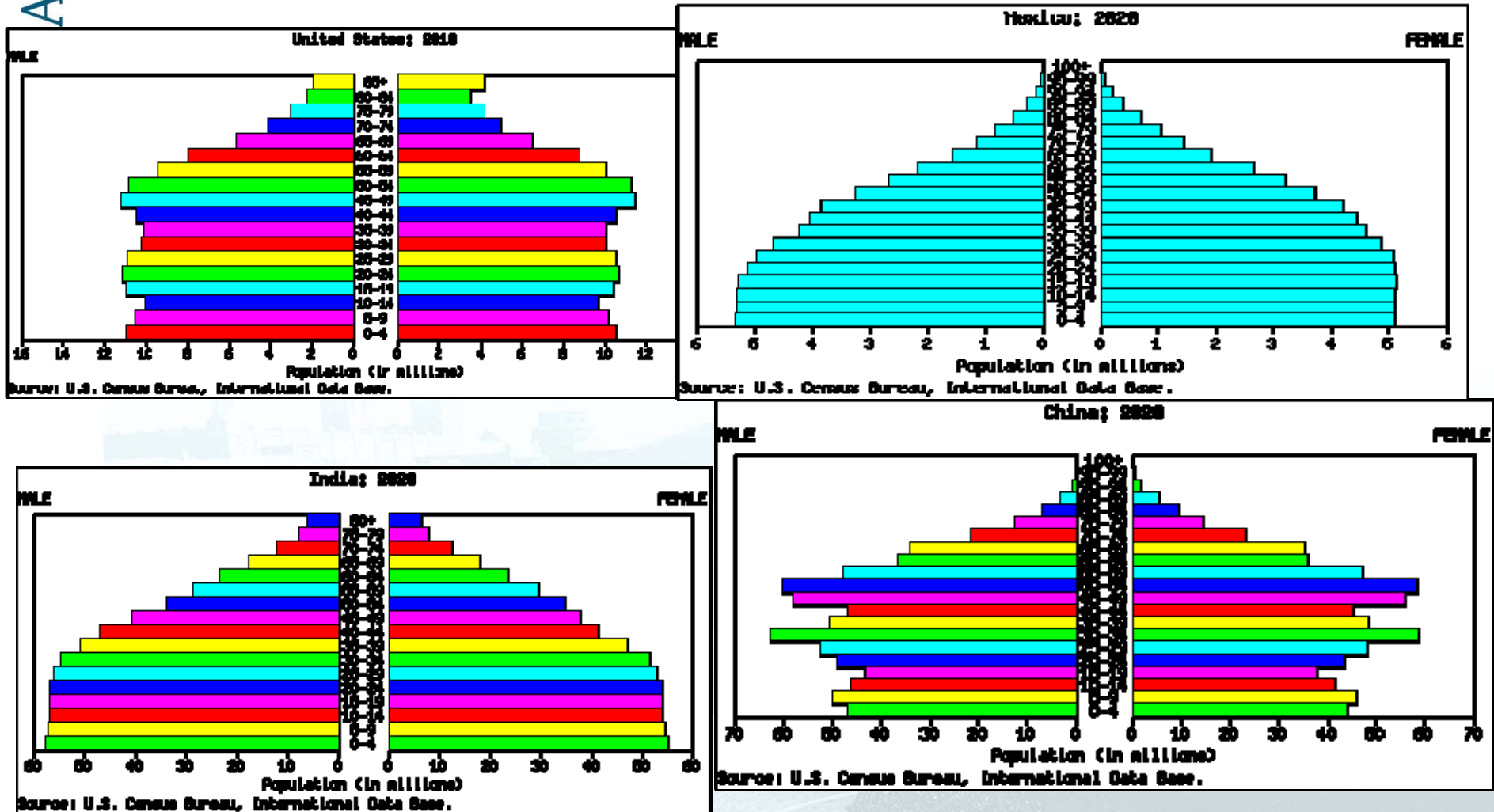
Exclusive Media Audience by Daypart



An Aging Western Europe



Youth Cultures and Markets



Surviving Business Models

- Advertising supported
 - Free access
 - Opt-in or forced
 - Real estate or drive-by
 - Deliver message or deliver eyeballs
- Subscription
- Fee for service, event or product
- Licensing
- Fee for site, seat, session

Advertising

- Negative good
- Flows with the product
- Segmentation and reach are keys
- Technology affects insertion, effectiveness
 - Placement (in content)
 - Interleaved (TV, web videos, magazines)
 - Real estate (web sites)
- Ad money will subsidize channels which support ad messages

Competing Paradigms

- Packaging vs. Delivery
- Media vs. appliances
- Products vs. services
- Publish vs. Connect
- Vertical vs. Lateral Integration
- Search-match vs. Find-Filter-Select
- Access vs. Customization
- Broadcast vs. MyCast vs. Our Caste

Thank You

