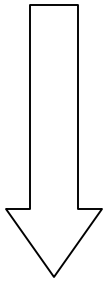
Venture Capital's Perspective on Healthcare Information Technology

Eugene D. Hill, III
SV Life Sciences Advisers, LLC

Health Information Technology Symposium
Massachusetts Institute of Technology
July 19, 2006

Information Technology

- **High margins**
- **High growth rate**
- **Compelling value proposition: reduced cost**
  improved outcomes
- **Rapid Technology change**



- **High capital market value**

The Substance

- Key Issues
  - ↘The Market
  - ↘The Management
  - ↘The Method
  - ↘The Money
  - ↘The Metrics

Market

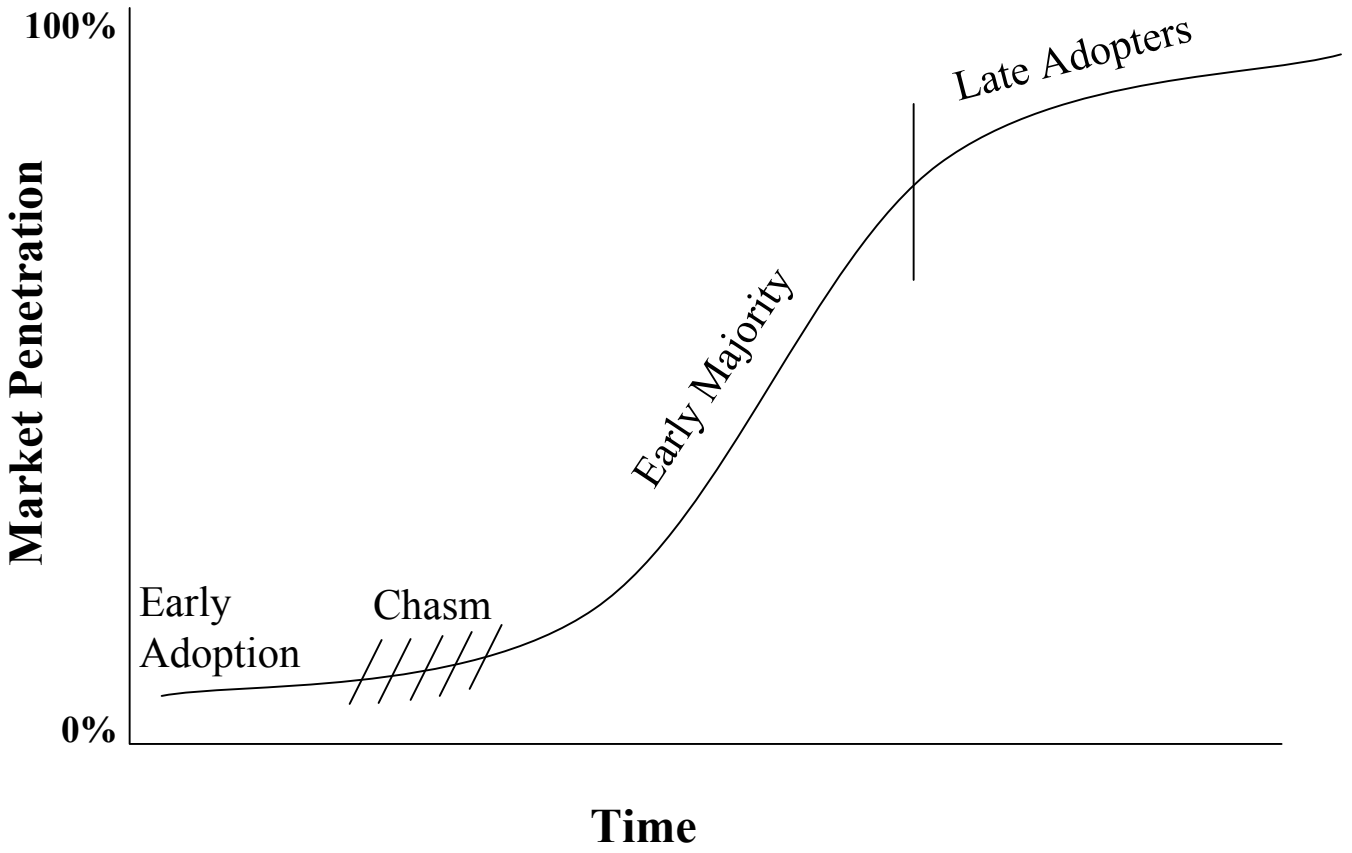
- **Macro**
  - ↘Size (>$500M p.a.)
  - ↘Growth Rate (>10% p.a.)
  - ↘Concentration (<30%)
  - ↘Barriers to Enter
- **Drivers**
  - ↘Aging Demographics
  - ↘Scientific Innovation
  - ↘Consumerism
  - ↘Cost Escalation
- **Micro**
  - ↘Economics (Pricing, Operating Margins)
  - ↘Customers
  - ↘Segmentation

Health Care I/T

- **Market**
  - ↘**Size:** **Healthcare $1.7T (15.0% GDP) 7% CAGR**
    Healthcare IT $20B; 12% CAGR
  - ↘**Characteristics:** **Fragmented**
    - **Health Plans (500)**
    - **Hospitals (5,000)**
    - **Nursing Homes (20,000)**
    - **MDs (650,000)**
    - **RNs (2,200,000) est.**

    Labor intensive
    Low Margin (except Rx)
    Highly regulated
    Data intensive/Information poor
    Technologically backward

Innovation Adoption – Life Cycle



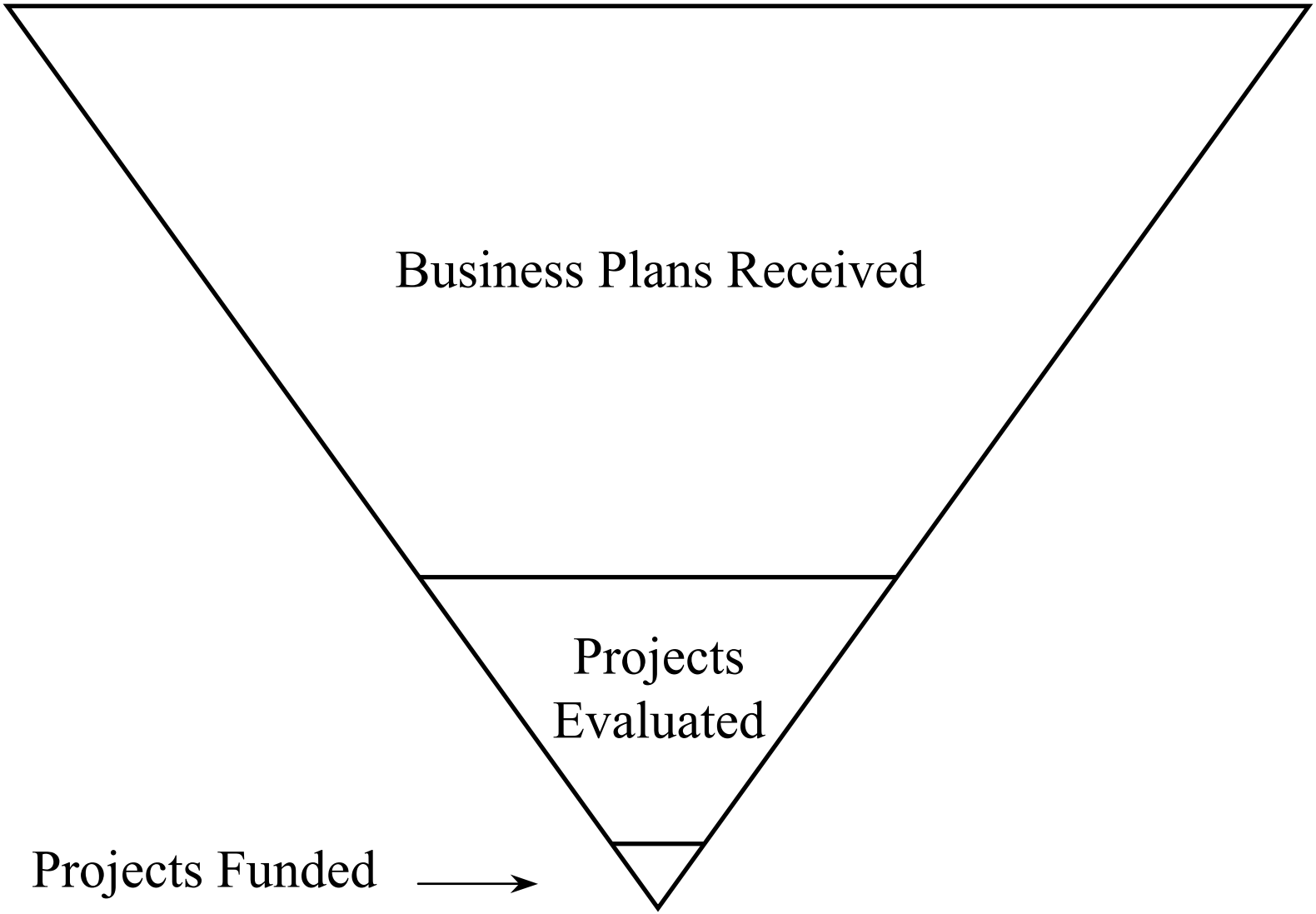
Adoption

- **Drivers**
  - ↘Economic
  - ↘Regulatory
  - ↘Psychological
  - ↘Demand
- **Enablers**
  - ↘Financial
  - ↘Regulatory
  - ↘Technological
  - ↘Standards

Health Care I/T

- **Barriers to Adoption**
  - **↘Structural**
    - » **Fragmentation**
    - » **Decision process**
  - **↘Economic**
    - » **Cost benefit ROI -- Increased revenue**
      Reduced time
      Reduced cost
    - » **Macro – reimbursement**
    - » **Micro – margins**
  - **↘Operational**
    - » **Work flow integration**
  - **↘Technological**
    - » **Legacy system integration**
    - » **Standards: Articulation**
      Compliance
  - **↘Regulatory**
    - » **HIPPA**

Venture Capital Deal Flow



Key Focus Areas

- **Major Risk Factors**
  - ↘**Technological**
  - ↘**Market**
  - ↘**Regulatory**
  - ↘**Operational**
- **Obvious Show Stoppers**
- **Better, Faster, Cheaper, or Brave New World**

Methodology

- Business Model
- Value Proposition
  - ↘What?
  - ↘How big?
  - ↘To whom?
- Distribution Strategy
- Competitive Differentiation
- Growth Strategy
- Technology

Competitive Analysis

- Market Share
- Mind Share
- Momentum
- Differentiation
- Buyer Motivation - Painkiller or Vitamin?
- Sales Cycle
- Pricing

Marketing

- Product
- Price
- Promotion (advertising)
- Place (distribution)
- Packaging

Customer

- Business (Enterprise)
- Consumer (Retail)

Business Model

- Product
  - ↘application software
  - ↘data
- Service
  - ↘subscription application
  - ↘clearing house

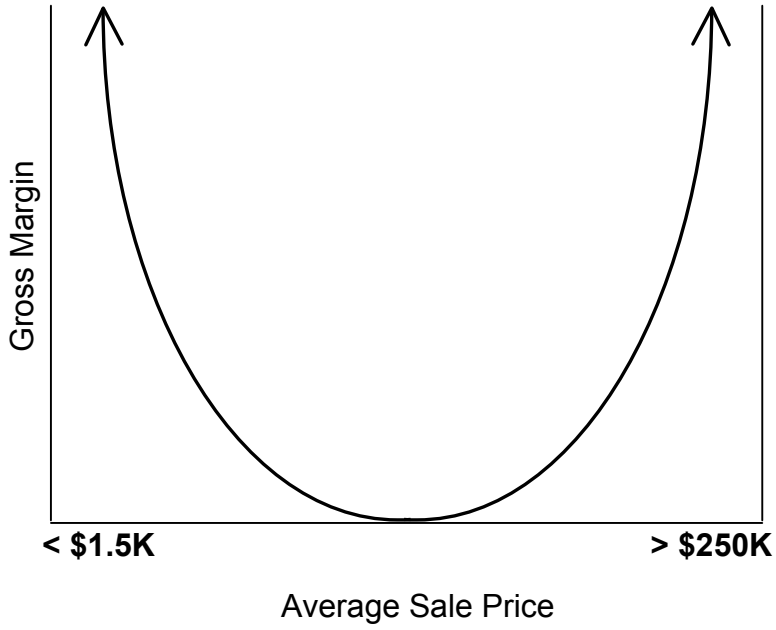
Pricing

- Traditional
  - ↘software license fee
  - ↘Annual maintenance
- Emerging
  - ↘subscription/ASP
  - ↘transaction based
- Issues
  - ↘gross margins
  - ↘working capital

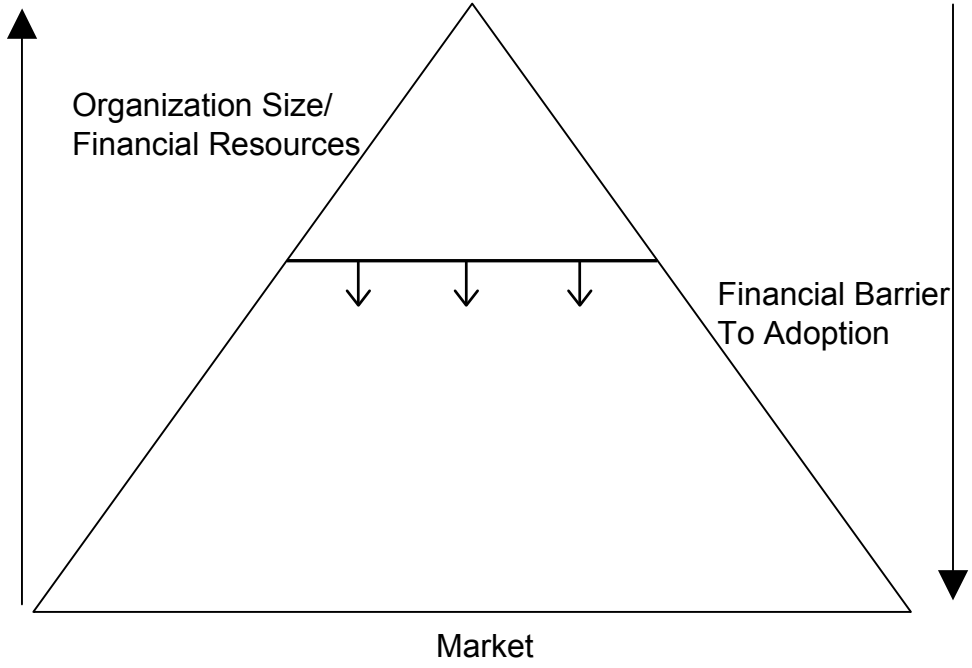
Pricing

- **Traditional**
  - ↘Software License Fee
  - ↘Annual Maintenance
- **Emerging**
  - ↘Subscription
  - ↘Transaction Based

Valley of Death



ASP Pricing Model



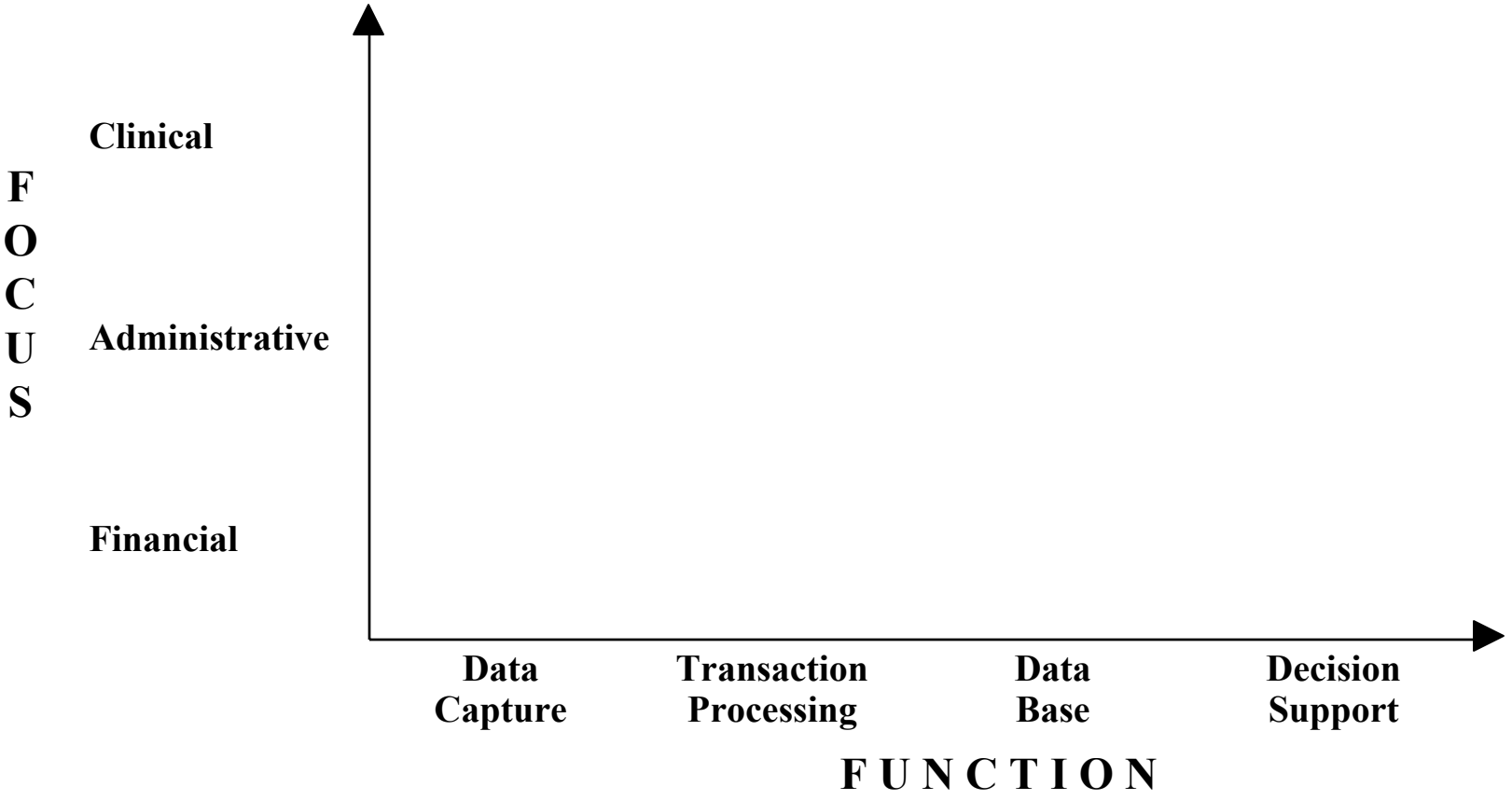
Management Orientation

- Missionary
- Mercenary

Management Attributes

STAGE	FOCUS	KEY ATTRIBUTES
Start-up	Development	Passion, Vision
Early	Entry/Pilot	Persistence, Tenacity
Expansion	Adoption	Process, Systems
Late	Penetration	Profits

Health Care I/T



Disruptive Technology

- **Technology Paradigm Shift:**

  - **↘Moore's Law (Speed/Cost Inverse Relationship)**

  - **↘Metcalfe's Law (Network Effective)**

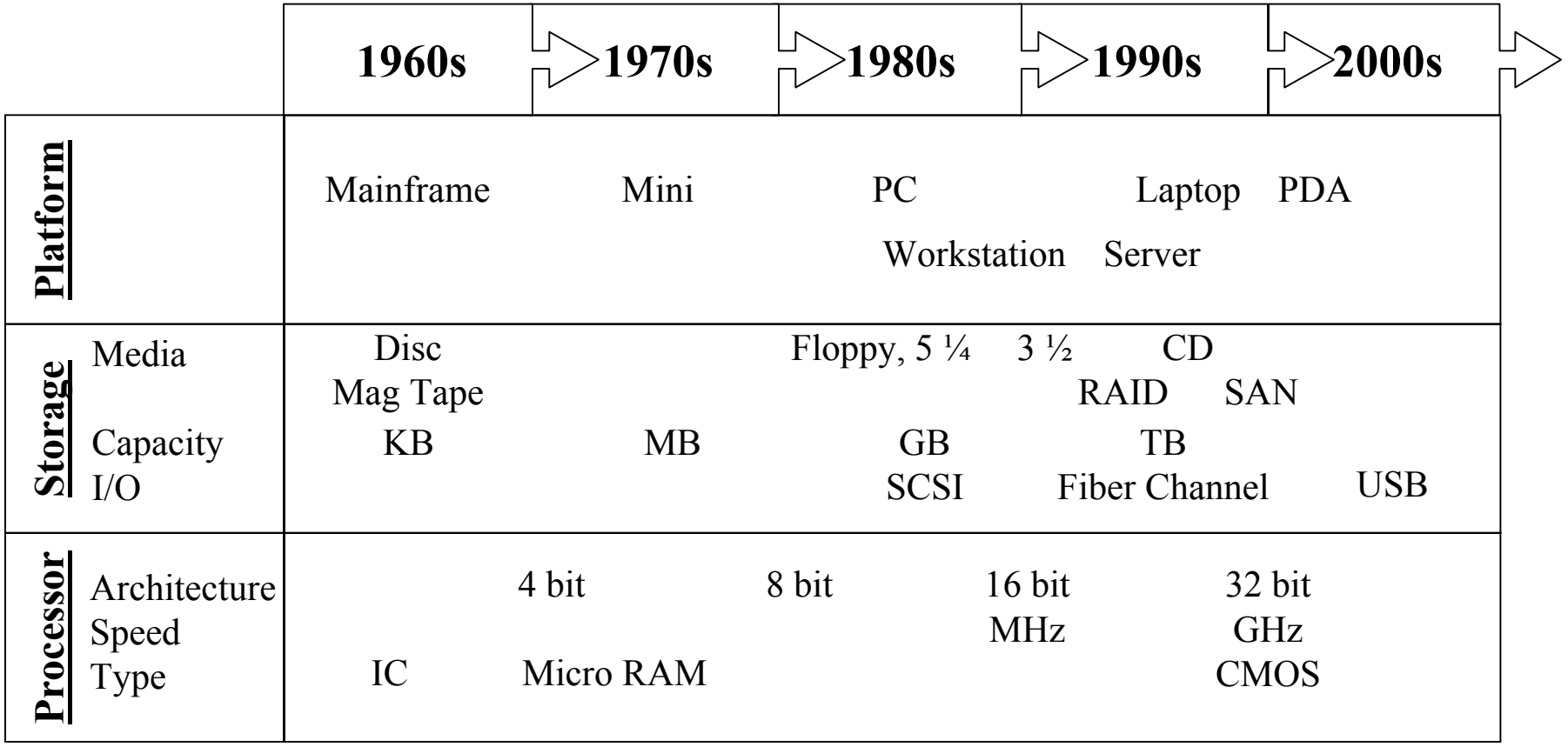
Healthcare/IT Evolution

	1960s	1970s	1980s	1990s	2000s
Appli-cation Provider	Financial (Billing/Acctg)	Administrative (Scheduling)	Clinical (Lab, Rx, Radiology)	Clinical (EMR, PACS, Protocols)	Clinical
Appli-cation Payor	Financial (Billing/Acctg/ Claims)	Human Resources			
Manufacturer/ Distributor	Financial (Billing/ Accounting)	Administrative (Human Resources)	MBR/ ERP	SFA Clinical (Data Base)	Clinical (EDC, Registry) Sales (E-Detailing)
Customers	Government Insurance Cos. Facilities (Hospitals)	MDs	MCOs Clinical Labs Imaging Ctrs	Consumers	
Vendors	EDS CSC McDonald Douglas IBM		RIMS HST HBO SMS MediTech ERISCO IDX Cerner Medic Comtec	McKesson Eclypsis MedMgr Envoy WebMD EzCap Trizetto Amicas Epic	GE Siemens
Legislation/ Region	Medicare/ Medicaid	HMO	PPS (DRG)	RBRVS HIPPA	HRA/HSA

Technology Evolution - Network

	1960s	1970s	1980s	1990s	2000s
Architecture	Proprietary (SNA) Non-proprietary-packet (TCPIP)		Academic Government	Commercial	
Speed		KB	MB	GB	
Connectivity	Wired Copper	Fiber	Wireless-Analog	Digital	
Switches	Analog	Digital		Optical	
Content	Voice Data		Graphic-Static	Dynamic	

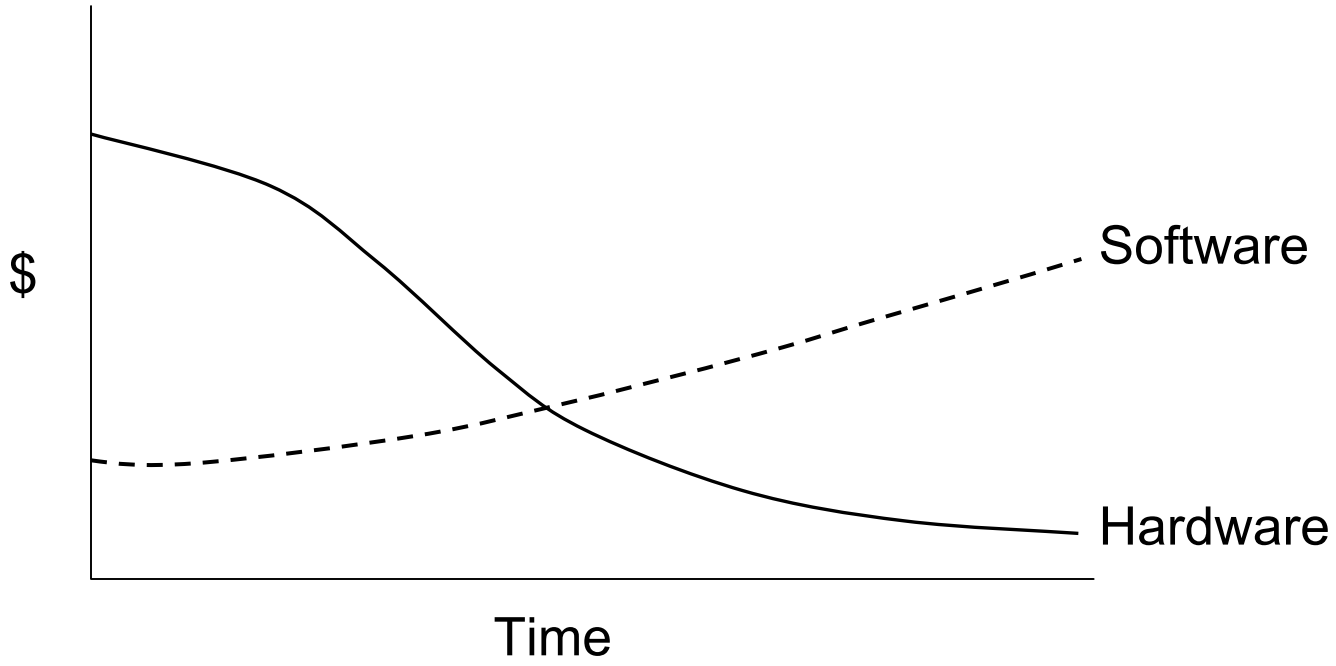
Technology Evolution - Hardware



Technology Evolution - Software

		1960s → 1970s → 1980s → 1990s → 2000s
Language	Ownership	Proprietary ... Open Source
	Code	Machine (Binary) · Assembler · Compiled 1st 2nd 3rd (Basic) · Object-Oriented (C, VB)
	Platform	Machine Specific ... Intra-operative (Java)
Data Base	Ownership Structure	Non-Relational Proprietary (ISAM/VSAM) · Relational Non-Proprietary ASCII
Archi-tecture		Mainframe · Mini · Client Server (2 Tier, 3 Tier) · Web (nTier)
Con-tent		Text · Graphics · Voice
Input		Character · Punch Card · Mag Tape · Graphic · Floppy · CD

Technology Cost



Healthcare Data