



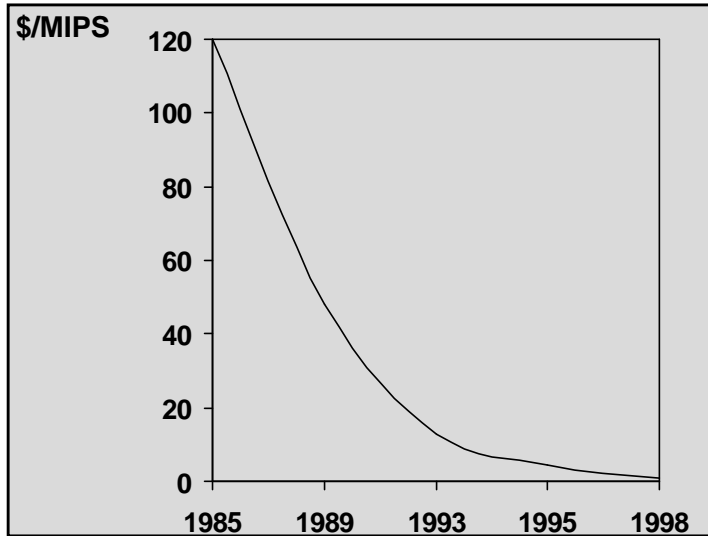
# Deconstruction of the Value Chain (Wertkette)

**Referatsunterlagen**  
Dr. Alexander Schmidt

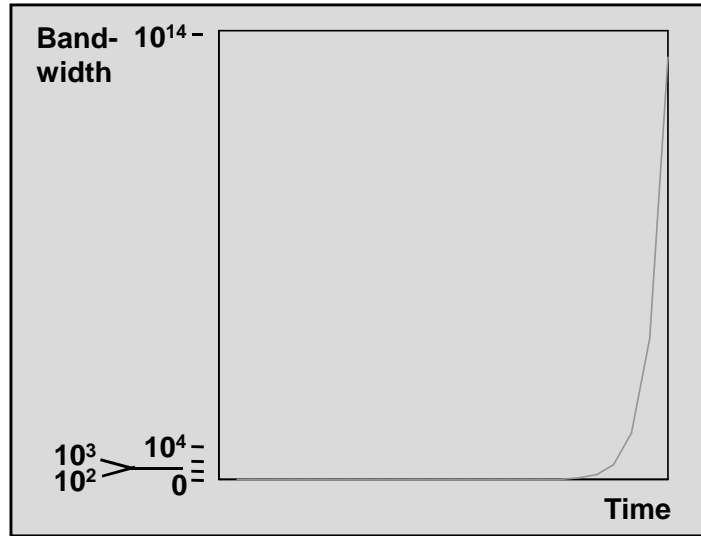
# DECONSTRUCTION OF THE VALUE CHAIN

# DECONSTRUCTION DRIVEN BY NEW ECONOMICS OF INFORMATION

Processing costs<sup>(1)</sup>



Throughput

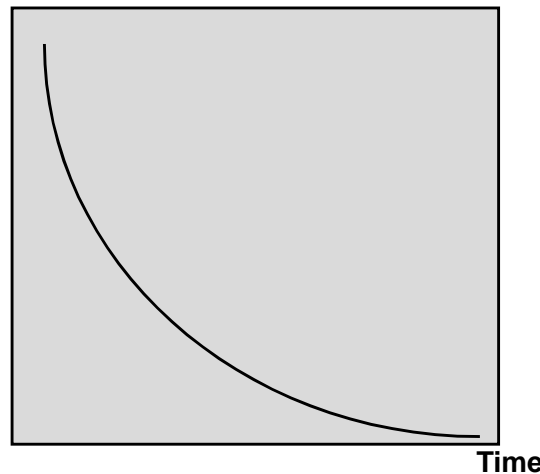


Connectivity

Connections	1	2	3	4	5	6	7	8	9	10	n
Value	0	2v	6v	12v	20v	30v	42v	56v	72v	90v	n(n-1)v
Cost	F+0	F+2c	F+3c	F+4c	F+5c	F+6c	F+7c	F+8c	F+9c	F+10c	F+nc

Lower transaction costs

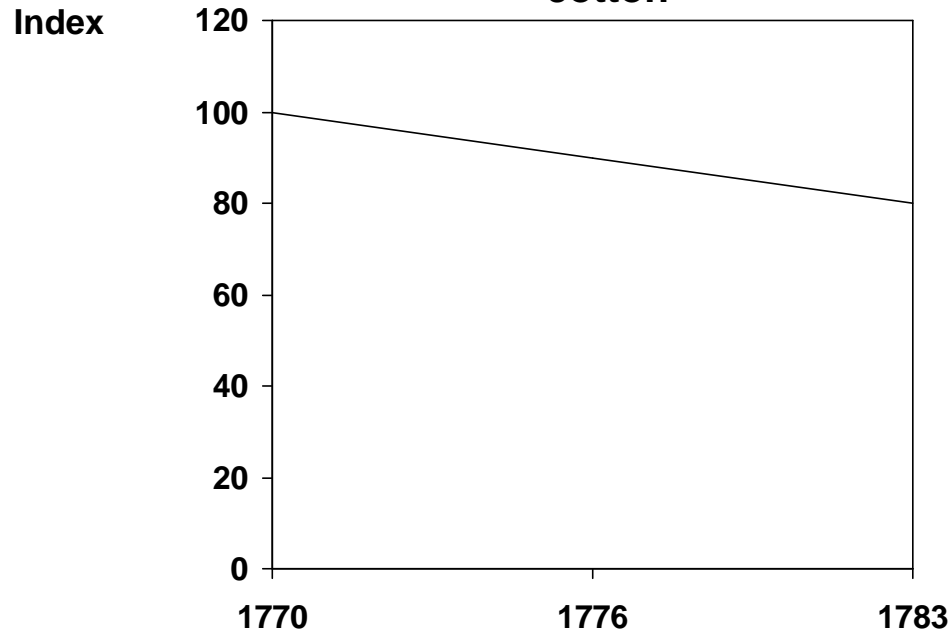
Size of firm;  
level of  
integration



(1) From \$120/MIPS in 1985 to \$0.99/MIPS in 1998  
Source: Micro Design Resources

# INDUSTRIAL REVOLUTION REDEFINED STATUS-QUO ECONOMICS

Workers per bushel of manufactured cotton



**Between 1770 and 1783, productivity per worker increased at an annual rate of 1.7%**

**By 1775, the whole process of yarn manufacture, including carding, drawing, rolling and spinning was performed by a succession of operations on one machine**



**Technological and manufacturing innovations introduced during the Industrial Revolution allowed for the production of an efficient supply of yarn**

# LATER, FORD REWROTE THE BUSINESS RULES OF HIS TIME

## January 5, 1914: \$5 Work Day Announcement

**GIVES \$10,000,000 TO 26,000 EMPLOYEES**

---

Ford to Run Automobile Plant 24 Hours Daily on Profit-Sharing Plan.

---

**MINIMUM WAGE \$5 A DAY**

---

No Employee to Be Discharged Except for Unfaithfulness or Hopeless Inefficiency.

- NYT

**"Distinctly Utopian and dead against all experience."**

» NYT

**FORD GIVES REASONS FOR PROFIT SHARING**

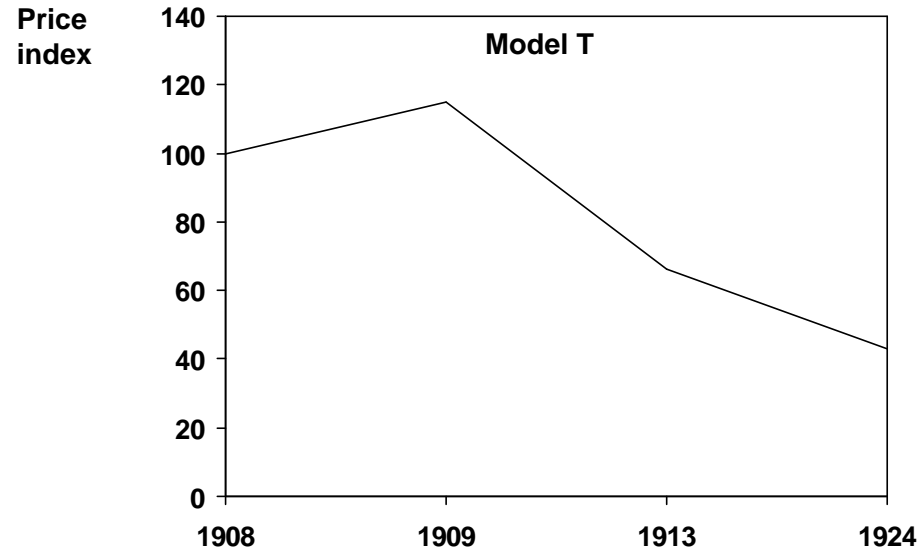
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Taking dividends in Good-Will, the Automaker Calls His \$10,000,000 Plan.

- NYT

**"A blinding rocket through the dark clouds of the present industrial depression."**

» Cleveland Plain Dealer



**"A magnificent act of generosity."**

» New York Evening Post

**WILL SPEND \$600,000 ON FORD PLANT HERE**

---

Great Addition Will Be Built to Assembling Factory in Long Island City.

---

**MANY MEN SEEKING WORK**

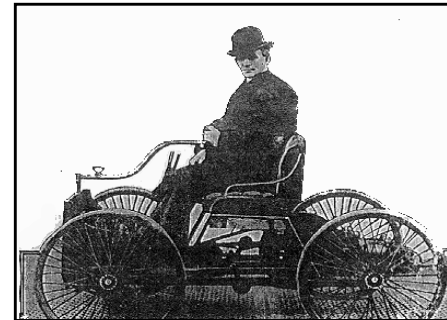
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More Than 200 Apply Each Day in Person—A Board Will Pick New Men.

- NYT

**"The most foolish thing ever attempted in the industrial world."**

» Wall Street Journal

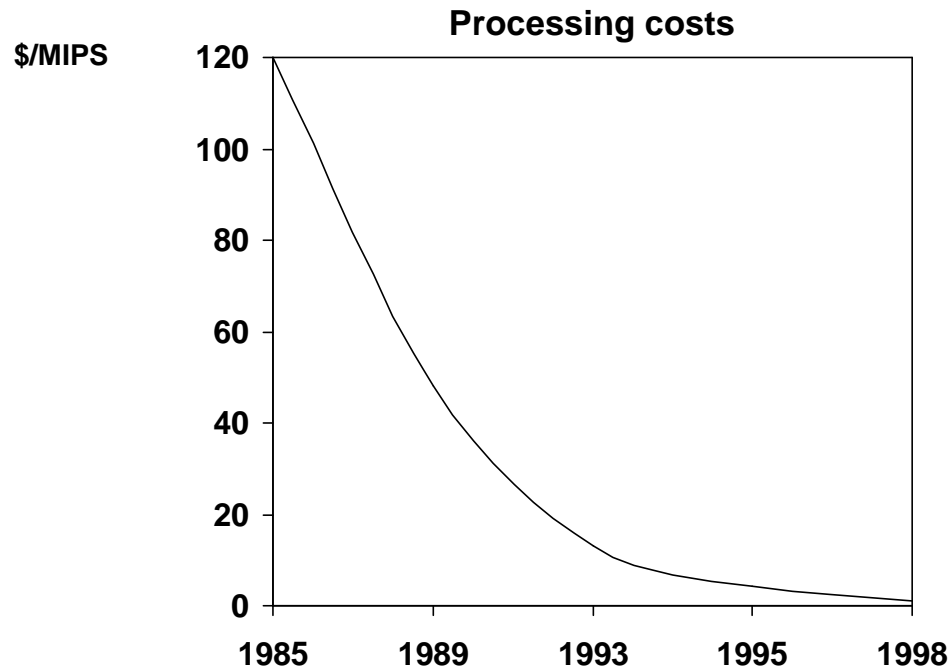


**"The increase in pay . . . Is neither charity nor wages. It is simply profit sharing."**

» Henry Ford

Source: Ford: The Men and the Machine, Robert Lacey; Newsweek; New York Times

# MOORE PREDICTED PROCESSING COSTS TO FALL PRECIPITOUSLY Fraction of What It Used to Be

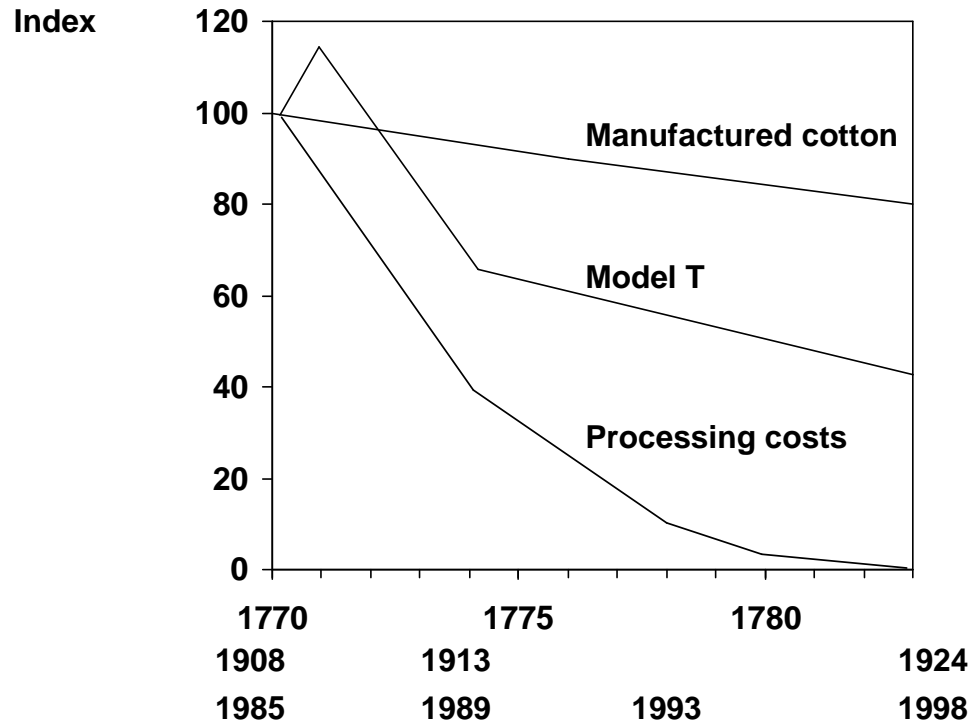


## Moore's law

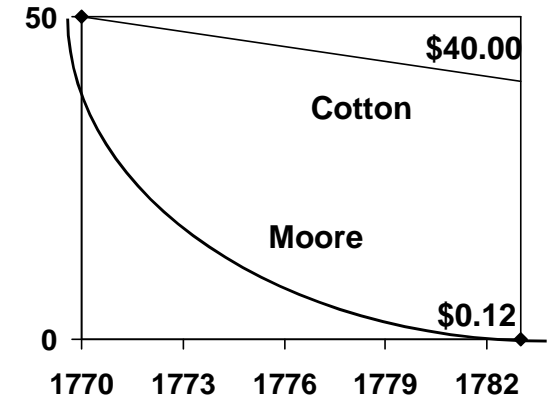
The number of transistors on a microprocessor will double every 18 months

Processing costs will continue to fall

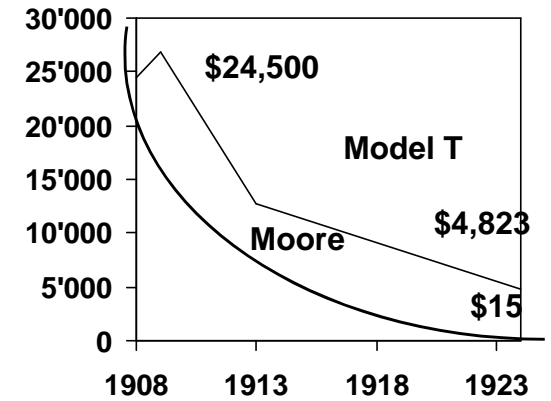
# BUT WE HAVEN'T SEEN ANYTHING YET



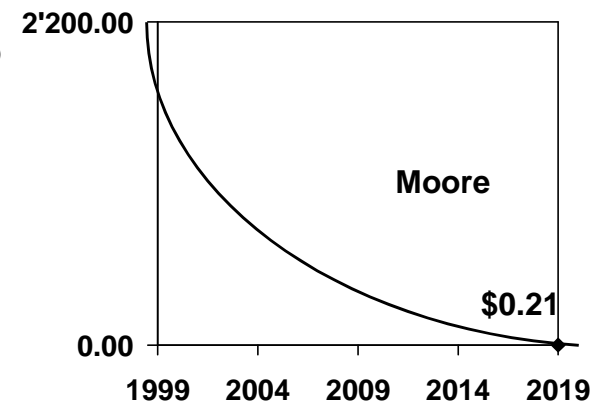
Cost of cotton shirt<sup>(1)</sup> (C\$)



Cost of Model T<sup>(2)</sup> (C\$)



Cost of computer<sup>(3)</sup> (\$)



(1) Estimate

(2) Used 1929 GDP deflator and assumed 5% annual inflation from 1908-1928

(3) Compaq 5670, Pentium II processor, 450 MHz, 19 Gb hard drive, 128 MB RAM, 5X DVD-ROM, 1.5 MB max digital modem, 4/8 MB 100 MHz SGRAM video memory

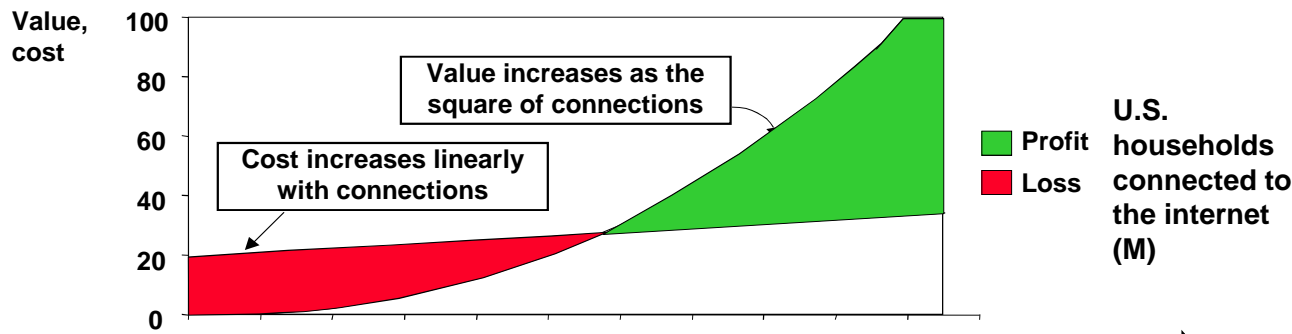
# GILDER EFFECTS OUR EVERYDAY LIVES

<b>Today</b>		<b>In 2008</b>
<b>6 minutes to brew 8 cups of drip coffee</b>	<b>. . .</b>	<b>6 minutes to brew 1,944 cups of coffee, or 8, 30-gallon servings</b>
<b>Super 80 transports 144 passengers from Dallas to Chicago on a two-hour flight</b>	<b>. . .</b>	<b>Super 80 transports 34,992 passengers from Dallas to Chicago on a two-hour flight</b>
<b>Lunch of one burger and small fries in an hour</b>		<b>Lunch of 243 burgers and small fries in an hour</b>
<b>2,009 passengers ride Splash Mountain each hour at Walt Disney World</b>	<b>. . .</b>	<b>488,187 passengers ride Splash Mountain each hour at Walt Disney World</b>
	<b>. . .</b>	

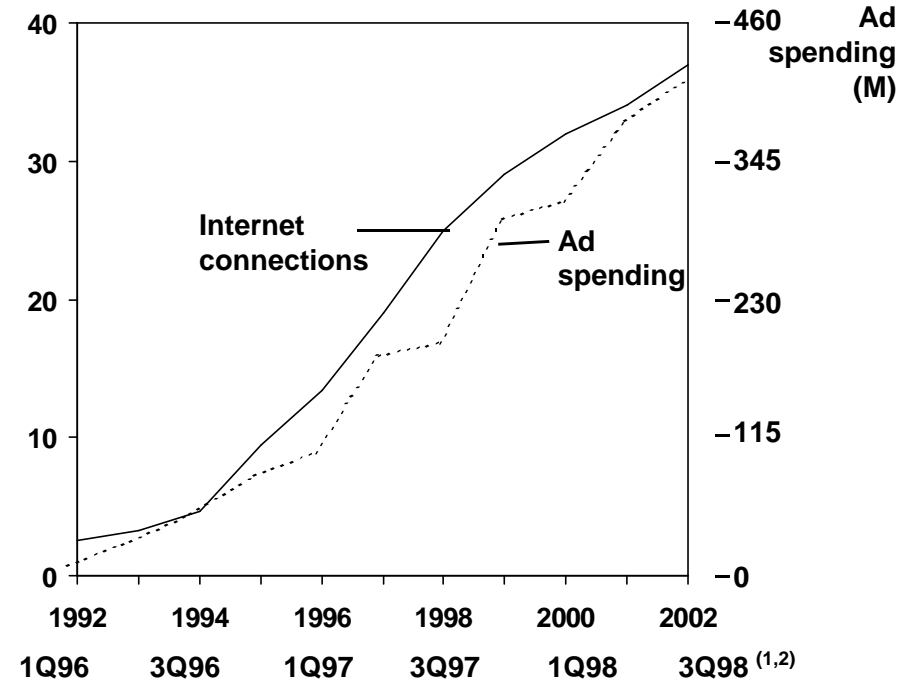
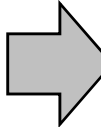
Source: Boeing web-site; Walt Disney World—Splash Mountain operating hourly ride capacity



# METCALF'S LAW DRIVES THE CREATION OF NETWORKS



Connections	1	2	3	4	5	6	7	8	9	10	n
Value											
	0	2v	6v	12v	20v	30v	42v	56v	72v	90v	$n(n-1)v$
Cost											
	F+0	F+ 2c	F+ 3c	F+ 4c	F+ 5c	F+ 6c	F+ 7c	F+ 8c	F+ 9c	F+ 10c	F+ nc



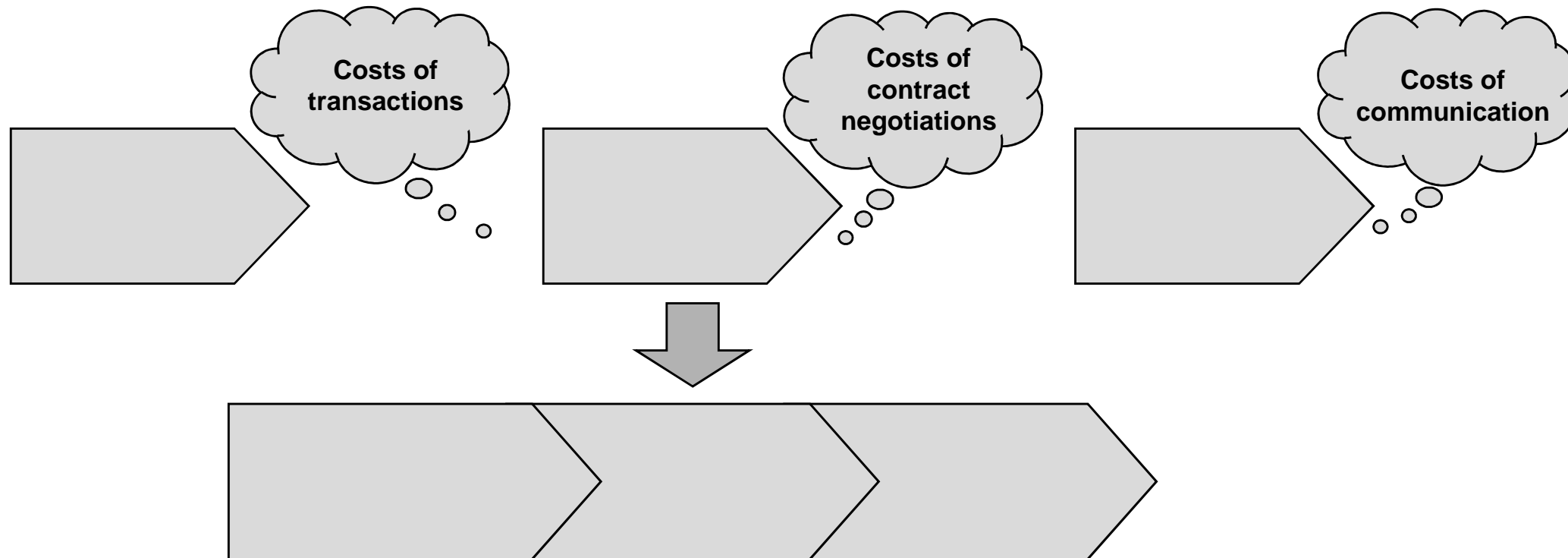
**Harnesses the value of Moore (processing) and Gilder (transmission)**

- (1) Estimate
- (2) Ad spending dates

Source: Veronis, Suhler & Associates; Internet Advertising Bureau (IAB); Advertising Revenue Reporting Program

# FIRMS FORMED TO MINIMIZE TRANSACTION COSTS

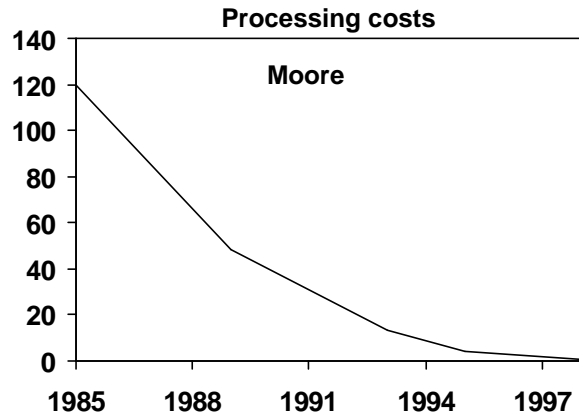
**Coase's Theorem:** Firms form when market inefficiencies, driven by the cost of information between independent entities, exceed the cost of managing and directing resources within a firm



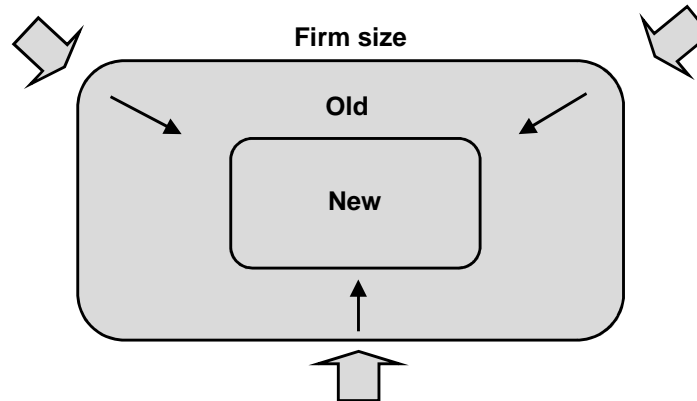
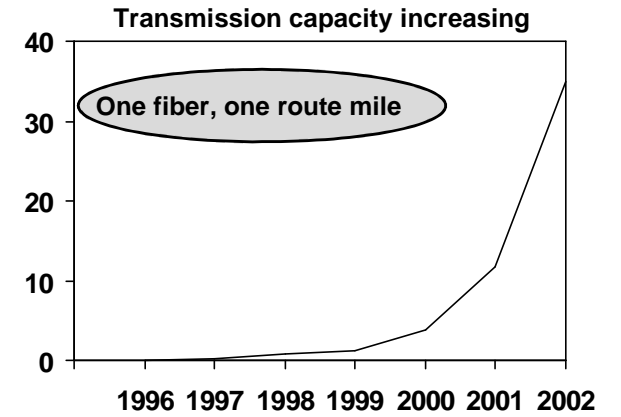
**Coase's theorem explains the formation of firms such as Standard Oil, National Steel, and IBM**

# FIRM SIZE IS BEING DRIVEN DOWN BY PLUMMETING TRANSACTION COSTS

\$/MIPS



DS-3 miles (000)



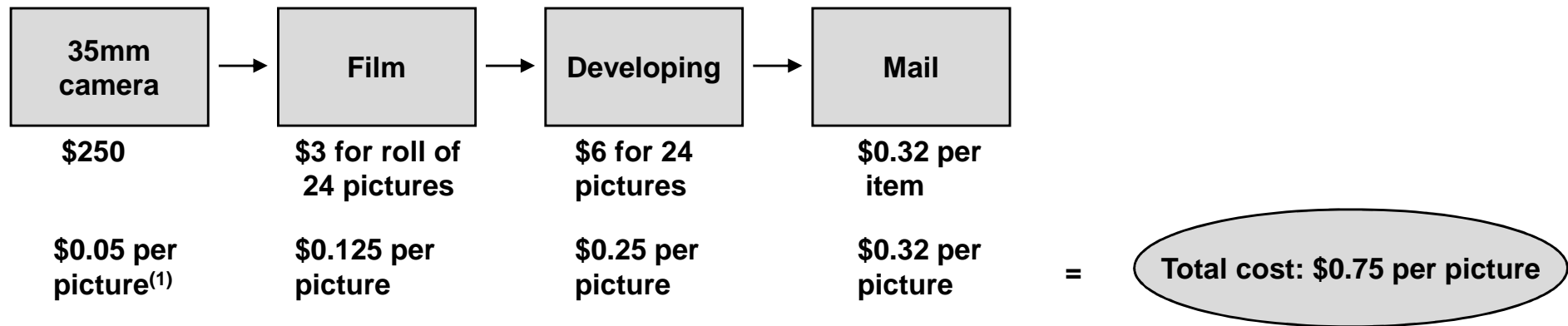
Connectivity

Connections	1	2	3	4	5	6	7	8	9	10	n
Value											$n(n-1)v$
Cost											$F+nc$
	$F+0$	$F+2c$	$F+3c$	$F+4c$	$F+5c$	$F+6c$	$F+7c$	$F+8c$	$F+9c$	$F+10c$	$F+nc$

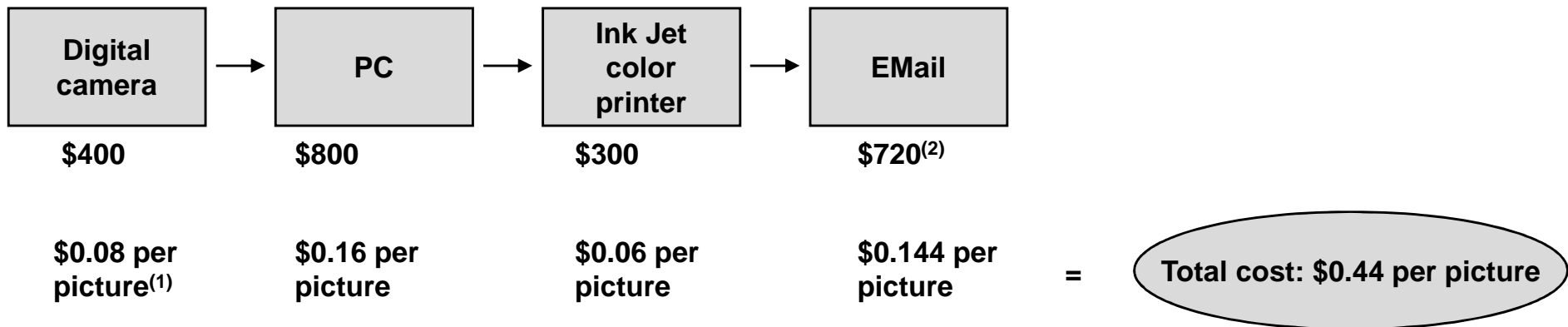
# EXAMPLE: PHOTOGRAPHY

## Taking a Photo and Sending to Relatives

### Traditional method



### New Method

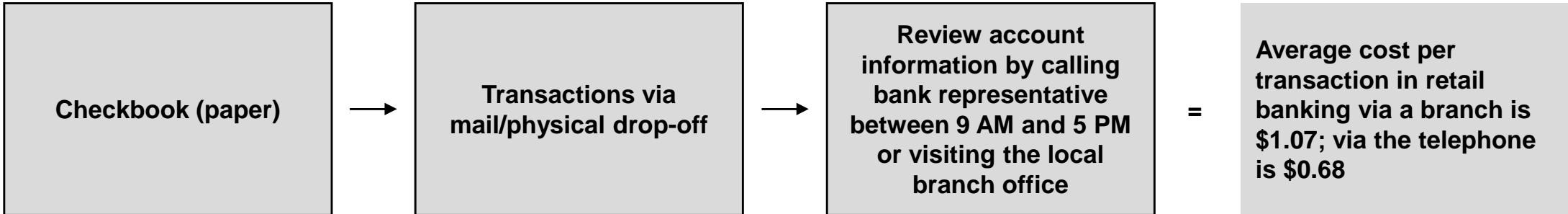


(1) Assumes 5,000 pictures; equivalent to using less than three rolls a month for six years

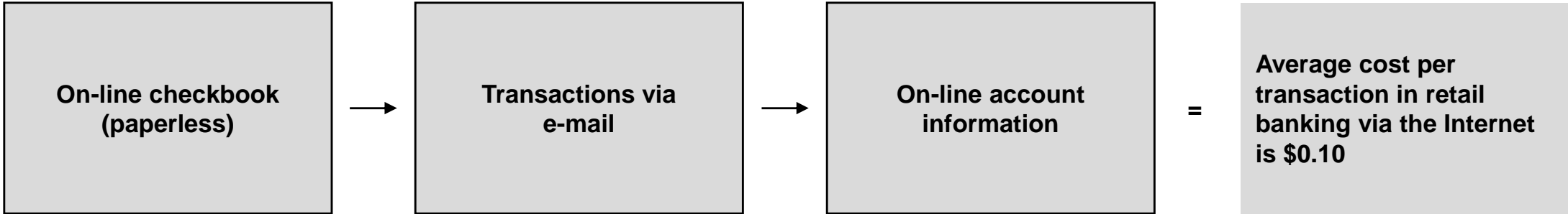
(2) Assumes \$10 per month for six years

# EXAMPLE: PERSONAL BANKING

## Traditional method



## New method



Source: *Unleashing the Killer App*, Larry Downes, Chunka Mui

# EXAMPLE: TOY SHOPPING

## Traditional method

Specialty toy stores (e.g. hobby shops)



Limited selection

=

Search time of one to two days

## New method

On-line (e.g. E-toys)



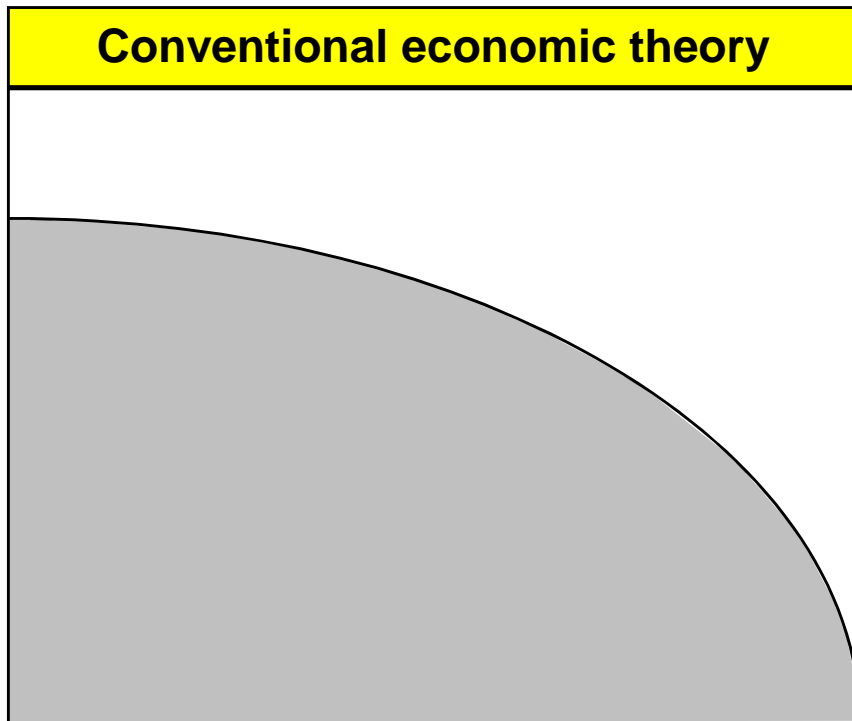
Unlimited selection

=

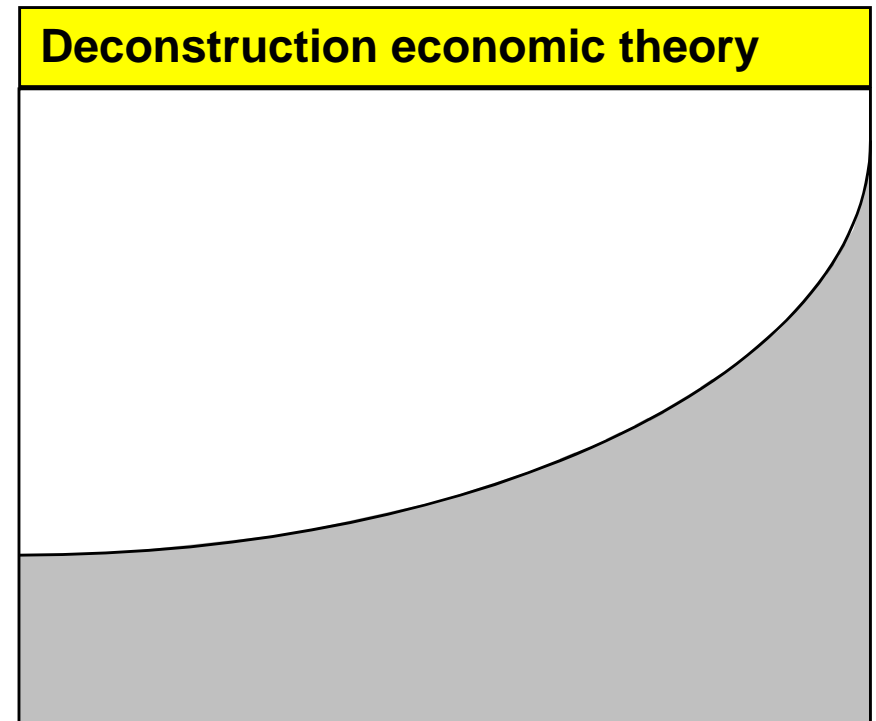
Search time of less than one hour

# THE ECONOMICS OF DECONSTRUCTION DO NOT ALWAYS ADHERE TO CONVENTIONAL ECONOMIC THEORY

Some Driven by the Network Effects of Information



**Decreasing Returns to Scale**



**Increasing Returns to Scale**

Source: W. Brian Arthur, Professor of Economics at Stanford University, pioneered the study of increasing returns economics

# THE ECONOMICS OF INCREASING RETURNS CREATE SEVERAL NETWORK EXTERNALITY BENEFITS

<b>Benefit</b>	<b>Explanation</b>	<b>Example</b>
<b>Direct externality</b>	<b>When a consumer's value for a good increases as other consumers buy a compatible good</b>	<b>Telephone</b>
<b>Market-mediated</b>	<b>When a complementary good becomes cheaper and more readily available the greater the network</b>	<b>Software</b>
<b>Market-completeness</b>	<b>When a richer second hand market develops</b>	<b>Car parts</b>
<b>Competition</b>	<b>When compatibility within a network prompts price competition among sellers</b>	<b>Floppy disks</b>

Source: Rand Journal of Economics, Vol 16, No. 1, Spring 1985, pp. 70-71



# APPLYING ONLY CONVENTIONAL ECONOMICS TO DECONSTRUCTION CAN LEAD YOU TO ASK THE WRONG STRATEGY QUESTIONS

## Strategy questions grounded in conventional economics

“How do I create barriers to entry in my market?”

“How should I compete?”

“How can I create advantage from product differentiation?”

“How should I price my product?”

“How can I accelerate my rate of innovation?”

## Strategy questions appropriate for deconstruction economics

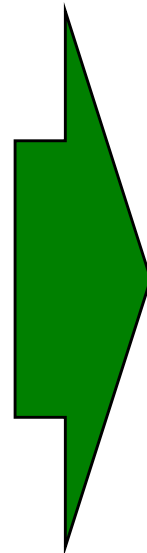
“How can I encourage others to enter my market?”

“How should I cooperate and compete?”

“How can I create advantage from product standardization?”

“Should I price my product, or should I give it away for free?”

“Should I promote innovation or favor the status quo?”

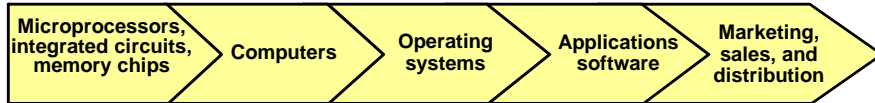


# DECONSTRUCTION: COMING SOON TO YOUR MARKET

## COMPUTER INDUSTRY

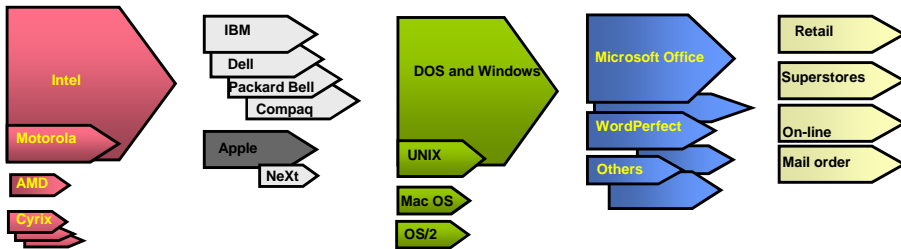
IBM, Digital

1985



Common standards  
Time based competition

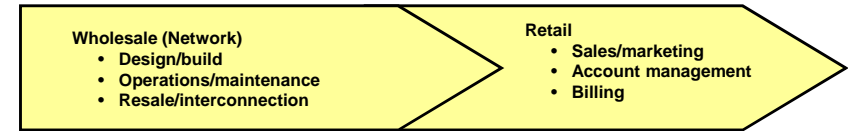
1995



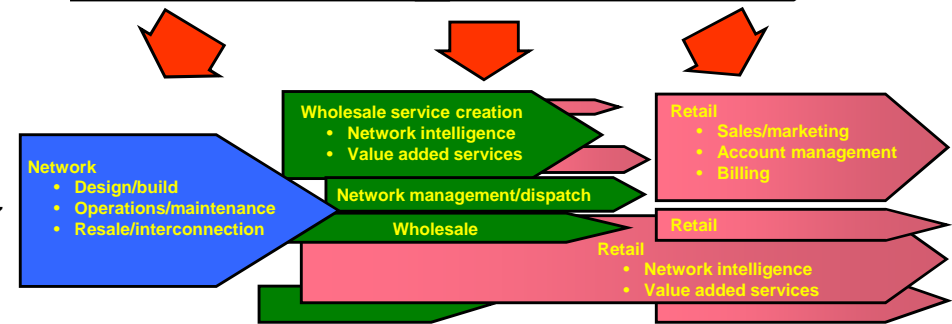
## LONG DISTANCE

AT&T, MCI and Sprint

1990



1997



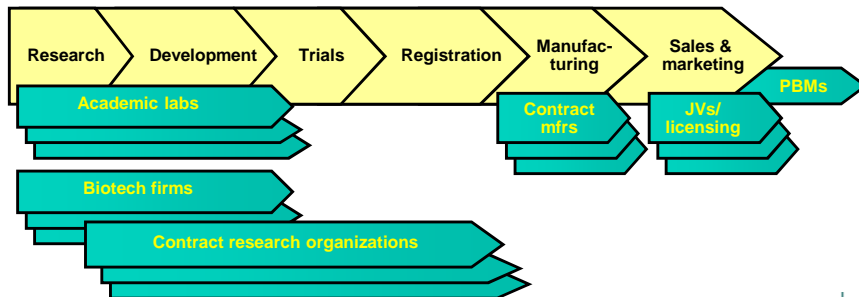
## PHARMACEUTICALS

1980s



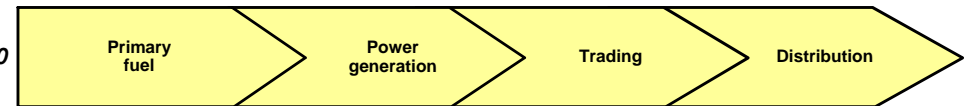
Increased development costs  
Role of blockbusters increasing  
Quality outsourcers available  
Easier coordination

1990s



## ELECTRIC UTILITIES

1990



Backward integration to reduce risk

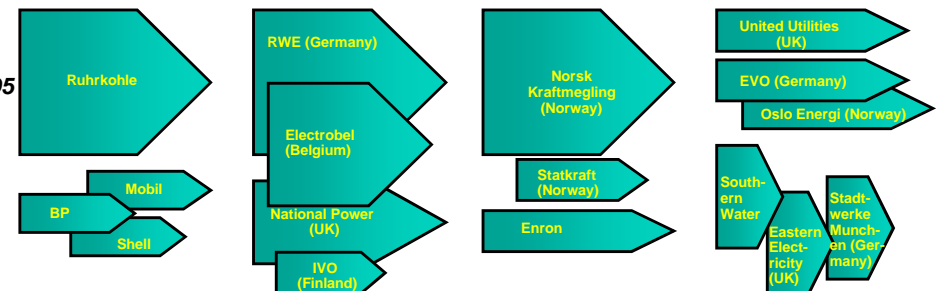
Forward integration to open supply channels

Scale through focusing on huge power plants

Synergy through bundling capabilities of general trading and energy business

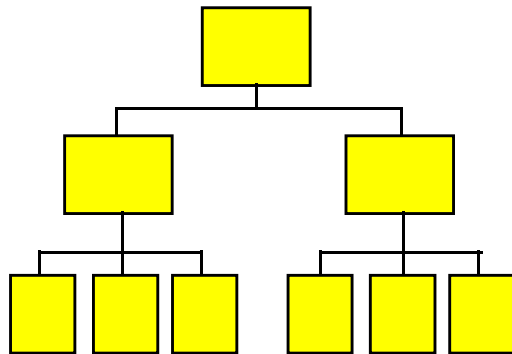
New services for the customer

1995



# DECONSTRUCTION ALSO AFFECTS ORGANIZATIONAL STRUCTURES

From Hierarchies

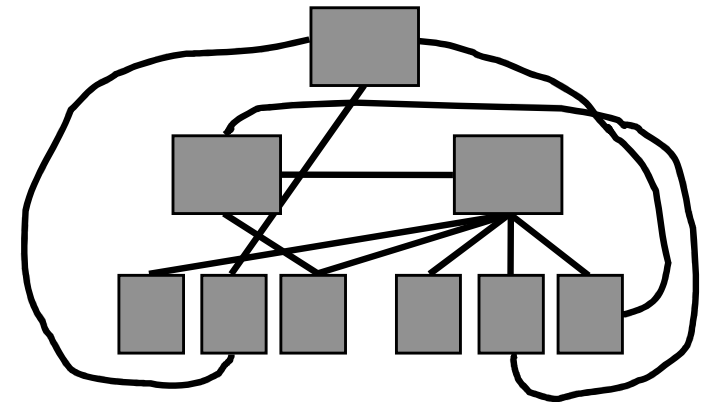


**Command control**  
**Fixed information flow**  
**Direct collaboration**  
**Strategic plans**



Breaking of  
richness/reach  
compromise

To Hyperarchies

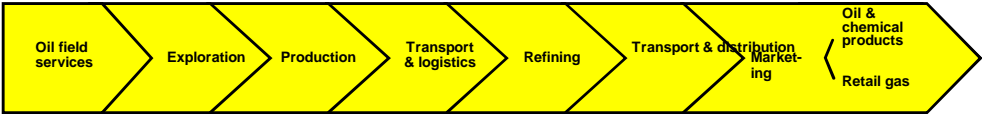


**Self-initiative**  
**Unfettered information flow**  
**Market-oriented interfaces**  
**Opportunistic strategy**

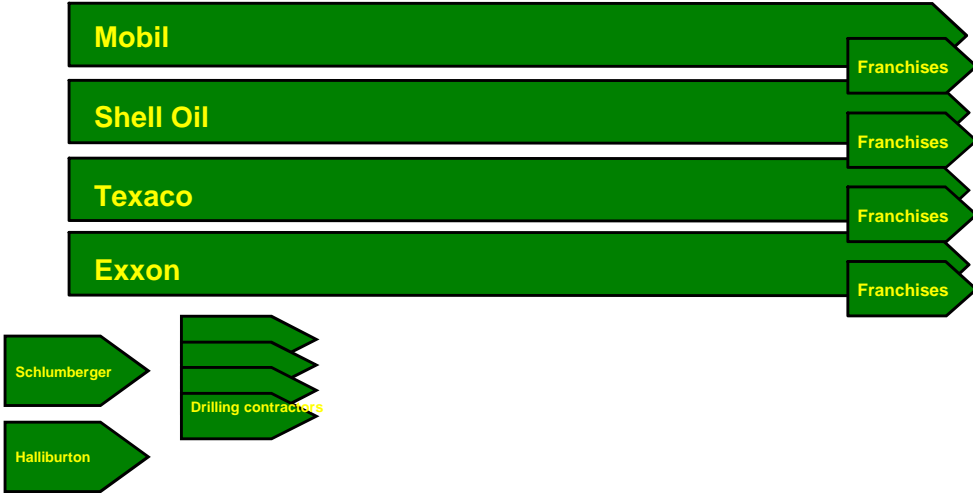
# INDUSTRY DECONSTRUCTION

## A Drive for Market Efficiency

Oil Industry Value Chain (circa 1978)



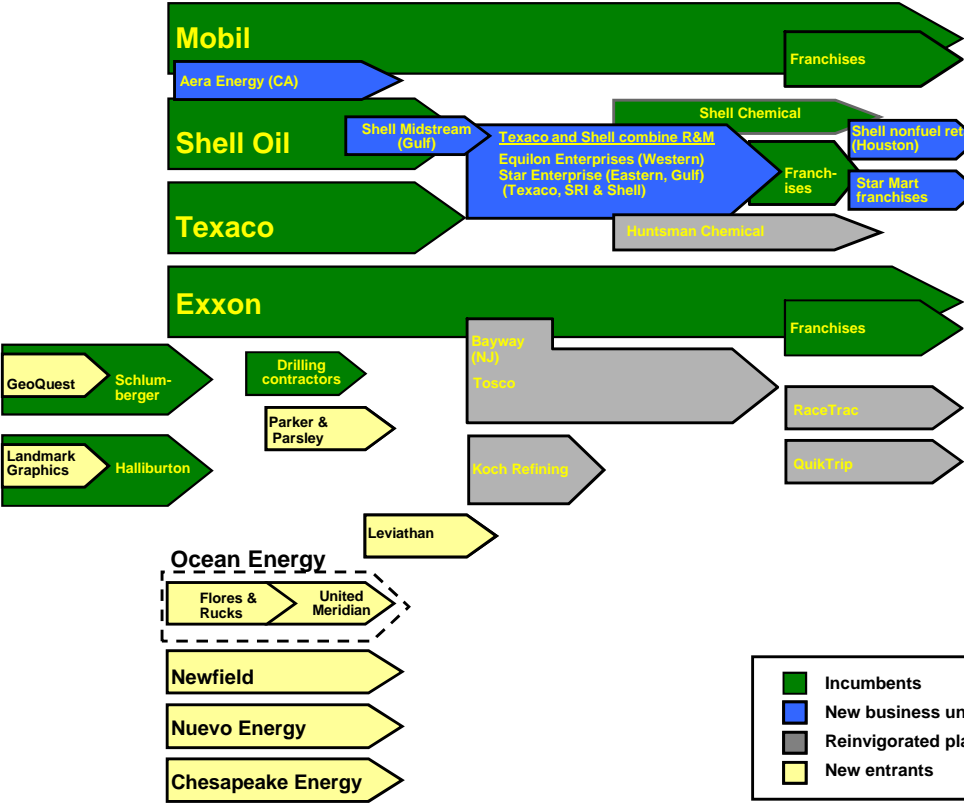
Players



Oil Industry Value Chain (circa 1997)



Players



# INDUSTRIES DECONSTRUCT IN TIMES OF RAPID CHANGE

## Forces Put Pressure on Vertically Integrated Incumbents

### Forces

**E-commerce**

**Natural monopolies**

**Improved contracting**

**Increased asset productivity**

**Deregulation & free trade**

**Reengineering & flexible production**

### Description of Pressure

Easier, greater, cheaper flows of information, increasingly detached from other supply activities

Emergence of products with network externalities - product's value increases as numbers of users increase

Better, cheaper, faster ways to make payment and to transfer or recombine risk

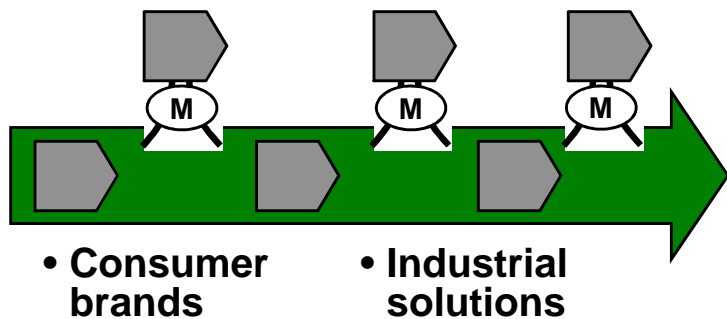
Pressure to break up illogical bundles of assets, allowing capture of hidden scale and other economies

Cheaper, easier, faster exchange of goods and services, opening markets along the value chain

Faster, cheaper production; more outsourcing

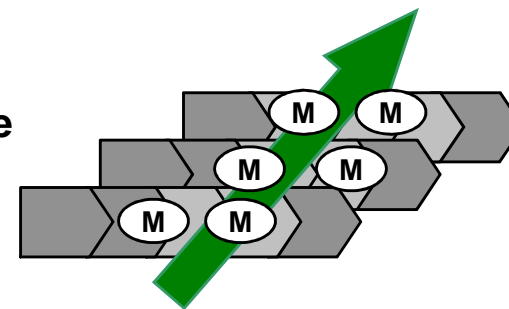
# DECONSTRUCTORS PURSUE COMPETITIVE APPROACHES THAT FOCUS INVESTMENT ON ADVANTAGE

## **O**rchestration of integrated offer

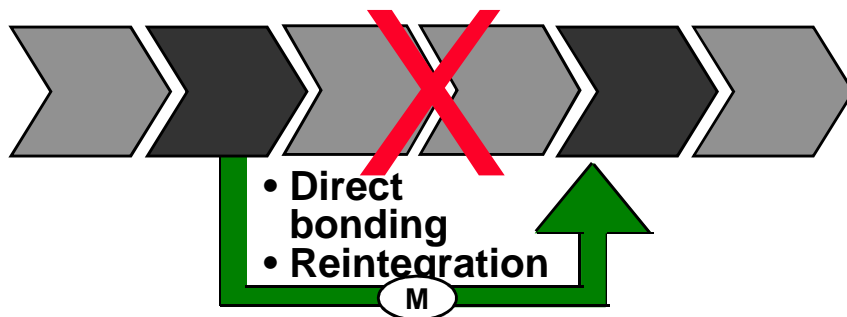


## **L**ayer mastery

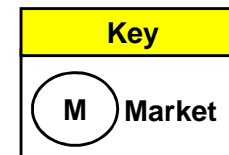
- Standards
- Knowledge
- Assets
- Scale



## **D**isintermediation



## **N**avigator



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