

U.S. KNOWLEDGE ASSETS:
CHOICE TARGET FOR INFORMATION CRIME

Fifth International Symposium on Global Security & Global Competitiveness
Open Source Solutions

Washington, D.C., 17 September, 1996

Presentation by P.A. Strassmann

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Traditional View of Crime - Stealing from Locked Sources

Judge: *Mr. Sutton, why do you rob banks?*

Mr. Sutton: *Judge, that's where the money is.*

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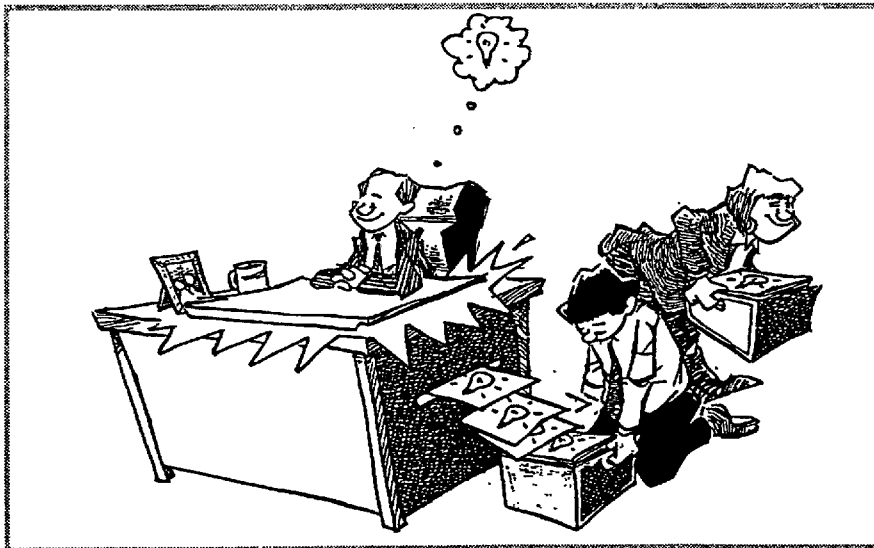
New Forms of Crime - Open Source Infotheft



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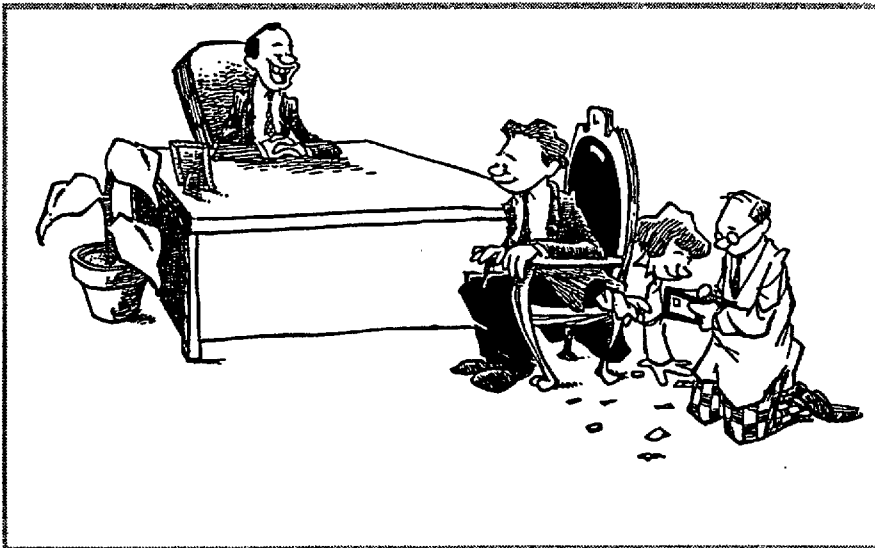
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Controversial Rankings of 192 Countries

Rank, Country	Estimated Wealth per Capita (US\$)	SOURCES (% of Total)			Human/Produced Assets
		Human Assets	Produced Assets	Natural Assets	
170. Singapore	306,000	85	15	0	5.67
171. United Kingdom	324,000	83	14	3	5.93
172. Finland	347,000	34	28	38	1.21
173. Italy	373,000	82	15	3	5.47
174. Netherlands	379,000	80	18	2	4.44
175. Belgium	384,000	83	16	2	5.19
176. Suriname	389,000	19	4	77	4.75
177. Austria	394,000	75	18	7	4.17
178. Germany	399,000	79	17	5	4.65
179. Kuwait	405,000	62	9	29	6.89
180. France	413,000	77	17	7	4.53
181. United States	421,000	68	16	25	3.68
182. Norway	424,000	48	22	30	2.18
183. Denmark	463,000	76	17	7	4.47
184. UAE	471,000	85	14	21	4.84
185. Qatar	473,000	51	11	39	4.64
186. Iceland	486,000	23	16	61	1.44
187. Sweden	496,000	56	16	29	3.50
188. Japan	565,000	81	18	2	4.50
189. Switzerland	647,000	78	19	3	4.11
190. Luxembourg	658,000	83	12	4	6.92
191. Canada	704,000	22	9	69	2.44
192. Australia	835,000	21	7	71	3.00
WORLD AVERAGE	86,000	64	16	20	4.00

SOURCE: World Bank, 1994-95 publications

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Context of this Presentation

- Meaning of "Information-Based" Society?
- Meaning of "Knowledge-Based" Civilization?
- What are policy implications of a Nation-State where geography, raw materials and tangible property rights are no longer the primary sources of wealth?
- What are the security consequences when "knowledge can be expropriated without it disappearing from the owner?"
- *If you cannot define and measure it, you do not understand it.*

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Questions to be Answered in the Presentation

- Where are the U.S. knowledge assets?
- How big are they?
- How easy is it to steal them?

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How to Examine what are the U.S. Assets?

- Corporate financial records offer reliable data about assets of the “engines” of the U.S. economy.
- Selected data from U.S. major corporations to explore the characteristics of “financial” and “knowledge” capital.
- Analysis offers verifiable conclusions.

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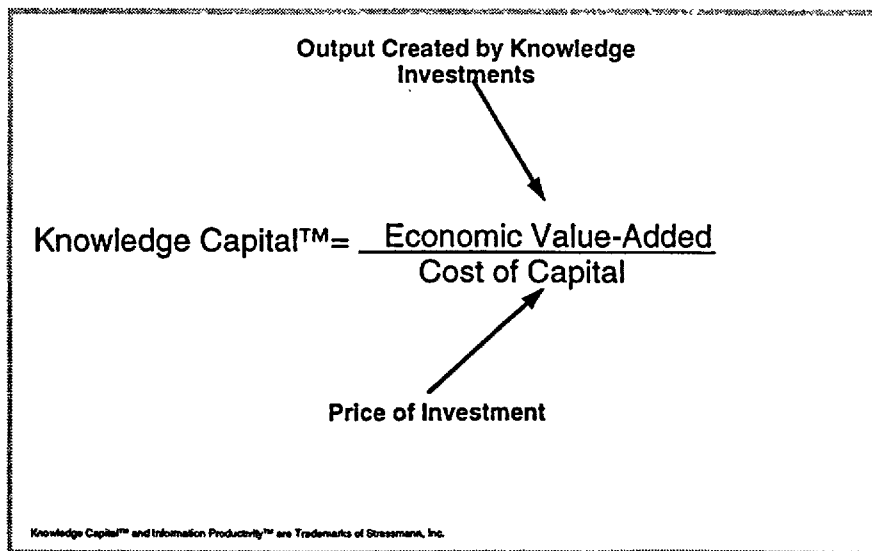
1,000 Corporations Analyzed in 56 Production Sectors

Aerospace	Food Processing	Business Machines
Cars & Trucks	Food Retailing	Computers & Peripherals
Auto Parts & Equipment	Coal, Oil & Gas	Computer Software
Tire & Rubber	Petroleum Services	Forest Products
Chemicals	Drug Distribution	Paper
Conglomerates	Drugs & Research	Broadcasting
Apparel	Health Care Services	Publishing
Appliances & Furnishings	Medical Products	Construct. & Engineering
Beverages	Building Materials	Industrial Distribution
Personal Care	Eating Places	Pollution Control
Tobacco	Hotel & Motel	Printing & Advertising
Glass, Metal Containers	Other Leisure	Other Services
Paper Containers	General Manufacturing	Telephone Equipment
Discount & Fashion Retailing	Machine & Hand Tools	Telephone Companies
Electrical Products	Special Machinery	Airlines
Electronics	Textiles	Railroads
Instruments	Aluminum	Transportation Services
Semiconductors	Steel	Trucking & Shipping
Food Distribution	Other Metals	

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Knowledge Capital™



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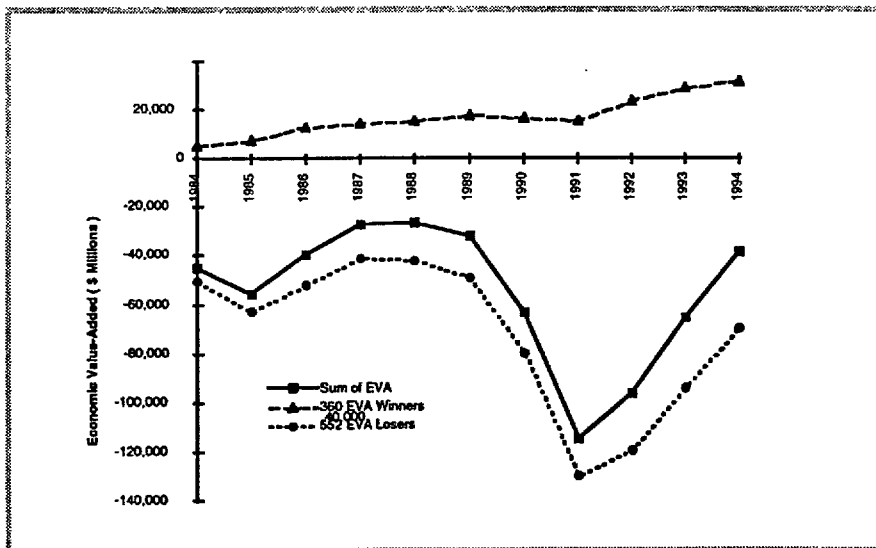
What is Economic Value-Added (EVA) ?

$$\begin{array}{c}
 \text{Economic Surplus Created by Enterprise} \\
 \text{minus} \\
 \text{Payment for Financial Capital Assets} \\
 = \\
 \text{Economic Value-Added} \\
 = \\
 \text{Value-Added Created by Knowledge}
 \end{array}$$

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Economic Value-Added, 912 U.S. Corporations - 1984-1994



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U.S. Financial and Knowledge Capital Assets

	1992	1993	1994
Financial Capital Assets (\$M)	2,668,920	2,804,510	3,048,139
Knowledge Capital Assets (\$M)	-876,349	-681,288	-378,898

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Top 10 Industrial Sectors 1984-1994

Industry Name	Sum of EVA for All Firms (\$M)
Beverages	1,562
Drugs & Research	1,263
Tobacco	1,229
Food Processing	439
Medical Products	412
Personal Care	274
Pollution Control	263
Business Machines and Services	162
Apparel	158
General Manufacturing	77
Sum of 10 Top Sectors (\$B)	5,839

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Bottom 10 Industrial Sectors in 1994

Industry Name	Sum of EVA for All Firms (\$M)
Conglomerates	-1,337
Petroleum Services	-1,363
Paper	-1,583
Steel	-2,709
Airlines	-2,874
Aluminum	-3,284
Telephone Companies	-3,491
Coal, Oil & Gas	-3,879
Railroads	-4,256
Cars & Trucks	-13,261
Sum of 10 Bottom Sectors (\$B)	-38,037

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20 Firms Have 37% of Positive Knowledge Capital (\$000)

Name	Knowledge Capital
MERCK & CO., INC.	5,786,503
COCA-COLA COMPANY (THE)	5,582,739
PHILIP MORRIS COMPANIE	5,083,440
GENERAL ELECTRIC COMPA	3,507,800
EXXON CORPORATION	2,979,185
INTEL CORPORATION	2,562,754
WAL-MART STORES, INC.	2,334,399
JOHNSON & JOHNSON	2,271,264
AMERICAN HOME PRODUCTS	1,912,357
SCHERING-PLOUGH CORPOR	1,843,346
BRISTOL-MYERS SQUIBB C	1,838,539
GILLETTE COMPANY (THE)	1,794,822
MICROSOFT CORPORATION	1,765,663
UNITED HEALTHCARE CORP	1,637,547
ABBOTT LABORATORIES	1,328,652
TRAVELERS GROUP, INC.	1,163,619
POLAROID CORPORATION	1,069,628
BANKAMERICA CORPORATIO	1,043,633
MERRILL LYNCH & CO., I	1,031,703
PEPSICO, INC.	1,025,544

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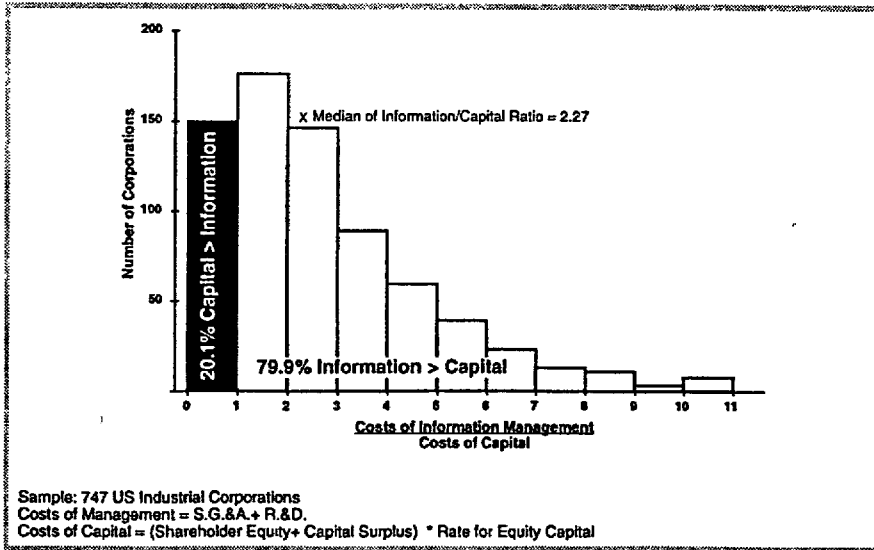
20 Firms With 26% of Negative Knowledge Capital (\$000)

Name	Knowledge Capital
DEAN WITTER	-518,753
AMR CORPORATION	-531,732
AETNA LIFE & CASUALTY	-534,823
LOCKHEED MARTIN CORPOR	-570,465
ALUMINUM COMPANY OF AM	-623,385
DELTA AIR LINES, INC.	-626,195
XEROX CORPORATION	-626,879
CHIRON CORPORATION	-682,969
NYNEX CORPORATION	-739,905
VIACOM, INC.	-766,924
FORD MOTOR COMPANY	-814,179
TELE-COMMUNICATIONS, I	-820,446
COLUMBIA/HCA HEALTHCAR	-824,355
DIGITAL EQUIPMENT CORP	-896,565
NAVISTAR INTERNATIONAL	-909,649
BETHLEHEM STEEL CORPOR	-1,000,808
RJR NABISCO HOLDINGS C	-1,027,425
ALLSTATE CORPORATION (-1,062,600
MORGAN (J.P.) & CO. IN	-1,132,005
IBM	-3,011,812

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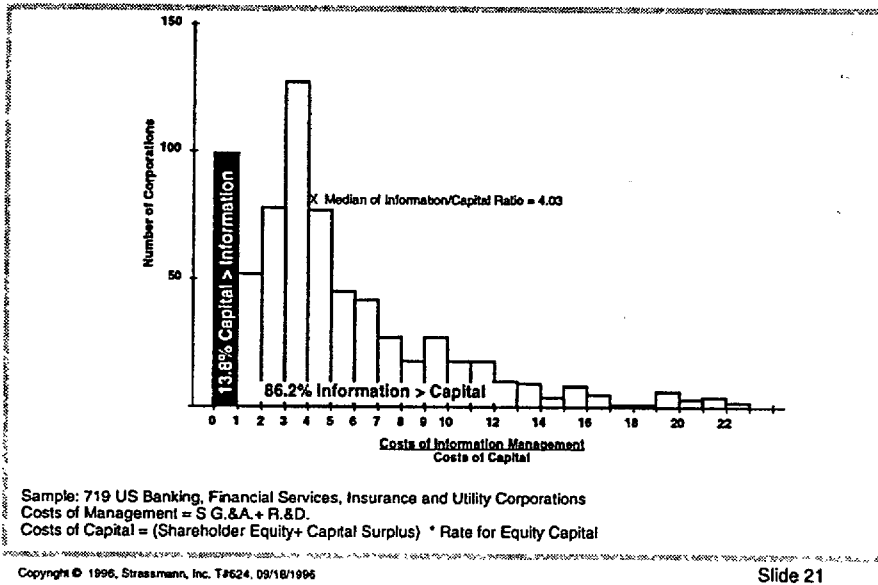
Importance of Information and Capital Costs - Industry



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Importance of Information and Capital Costs - Services



International Comparison of Information/Capital Ratios

# of Companies	Country	Median Info/Capital Ratio	% of Firms with Info > Equity
123	Germany	1046%	94%
162	Italy	528%	91%
2959	USA	472%	91%
1175	U.K.	465%	86%
1768	Japan	407%	95%
120	Switzerland	379%	87%
308	Canada	158%	60%

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Capital and Management Costs for 770 Large U.S. Firms

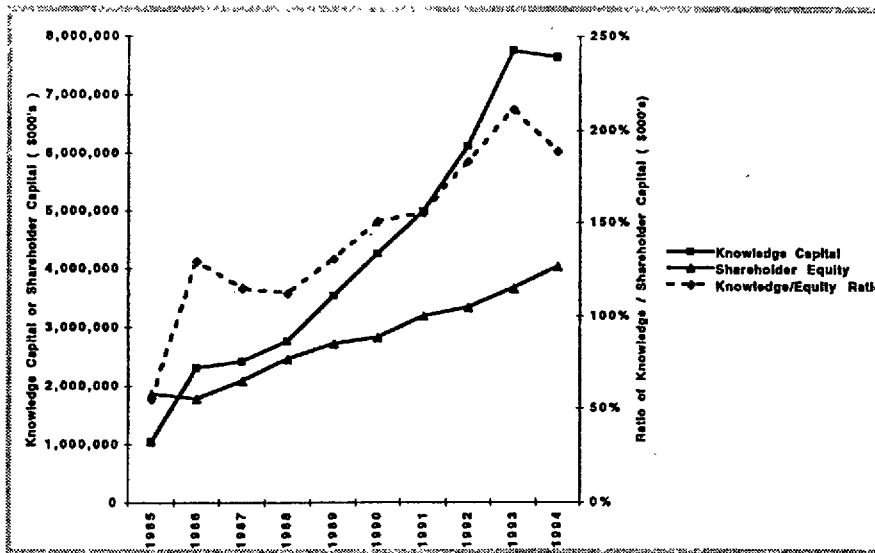
	\$ Billions	\$ per employee
1994 Annual Cost of Financial Capital Assets	300.9	16,840
1994 Information Management Expenditures	639.7	35,805

Costs of Management = S.G &A. + R &D.
Costs of Capital = Capital * Rate for Equity Capital

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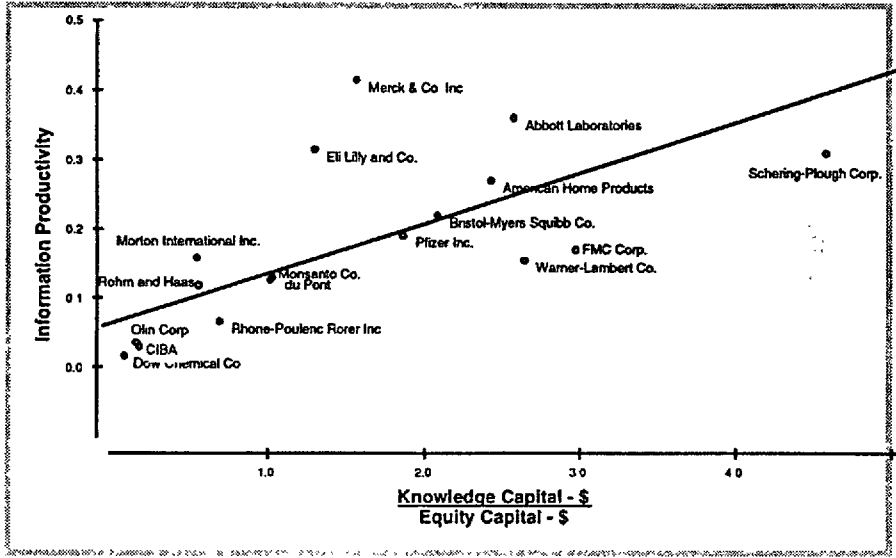
Capital Growth Trends for Abbott Laboratories (1985-1994)



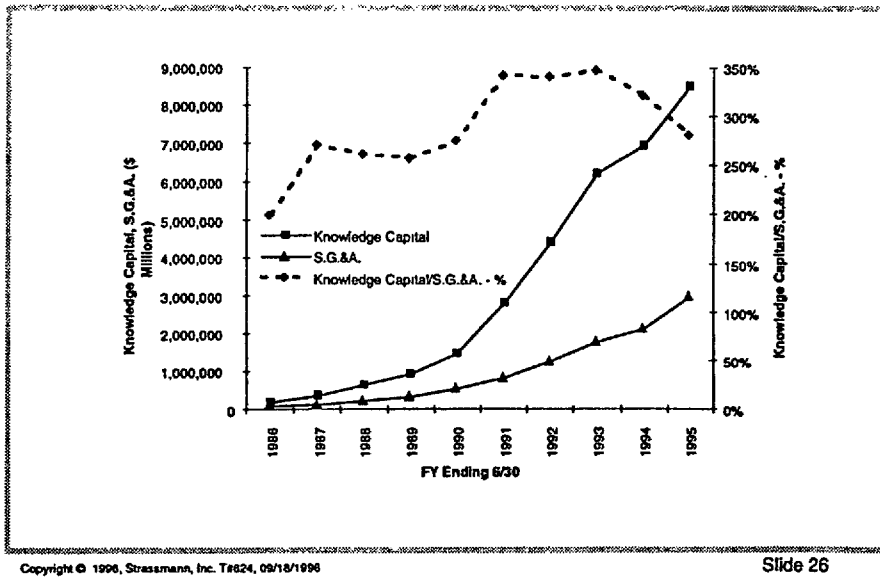
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Knowledge Capital Favors Information Productivity™



Microsoft Knowledge Capital Trends



Protection of Knowledge Assets: One Superb Solution

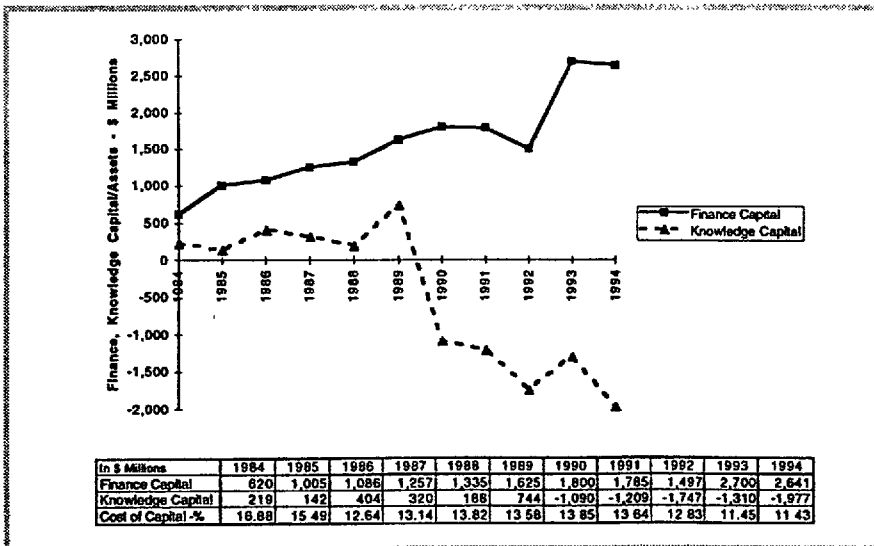
- “The company’s long-awaited operating systems is not a product but a set of technologies.....”
- “...switch is part of Microsoft’s plans to move toward an “annuity” upgrade model....”
- “....customers subscribe to an on-line update service and download new features.....”

•SOURCE: *COMPUTERWORLD*, August 5, 1996, p.1

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Example of Substandard Performance - The New York Times



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Summary

- "Knowledge Capital" not as yet dominant asset of U.S. economy because corporate performance continues to be assessed by efficiency of Financial Capital use.
- A few companies account for most of positive Economic Value-Added results.
- Corporations with high Knowledge Capital™ values will be prime targets for information crime.
- Economic and trade policies should track "Information-Age" measures of performance instead of relying on Financial Capital Asset metrics from the Industrial Era.

OSS '96: THE CONFERENCE Proceedings, 1996 Volume II, Fifth International Symposium Global Security & Global Competitiveness: Open - Link Page

Previous Mr. Albert Dixon, Director of Government Marketing, LEXIS-NEXIS, Online Public Records and Criminal Investigations: Specific Capabilities and Missing Links

Next Mr. Jeffrey Krattenmaker, LEXIS-NEXIS, LEXMAP Demonstration and Discussion

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