

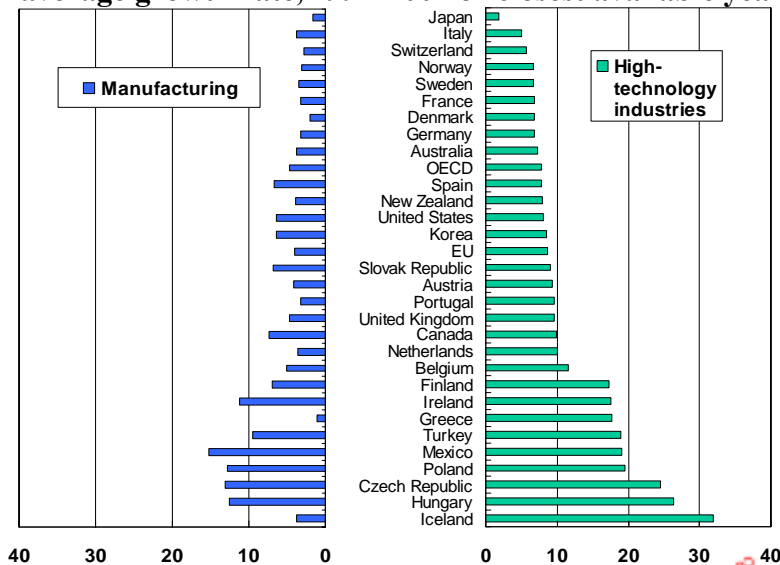
Change management in an Economy of Speed

APO
Study meeting
June 23, 2004
Hyderabad India

Risaburo NEZU
Fujitsu Research Institute

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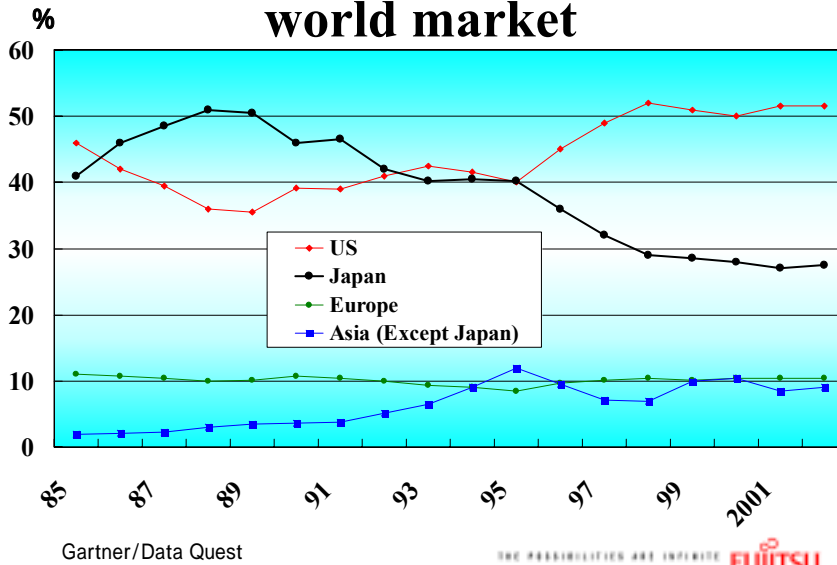
Growth of high- and medium-high-technology exports, annual average growth rate, 1992-2001 or closest available years



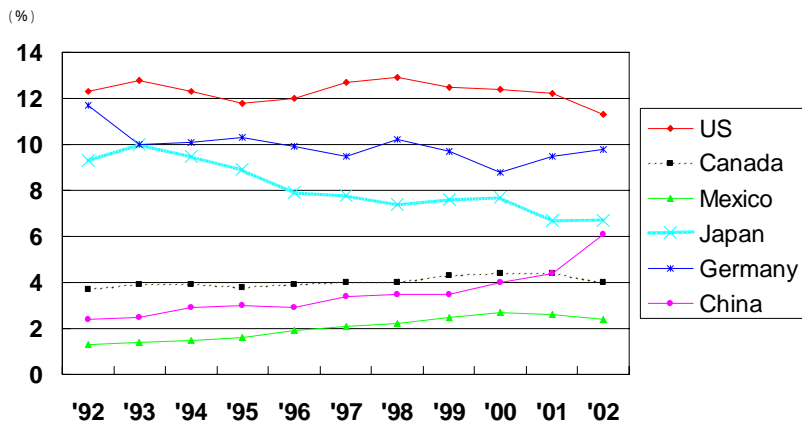
*OECD total excludes Czech Republic, Luxembourg, Korea and Slovak Republic. Czech 93-, Slovak 97-, Korea 94-
Source: OECD, STAN database, May 2003.

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Share of semiconductor in the world market

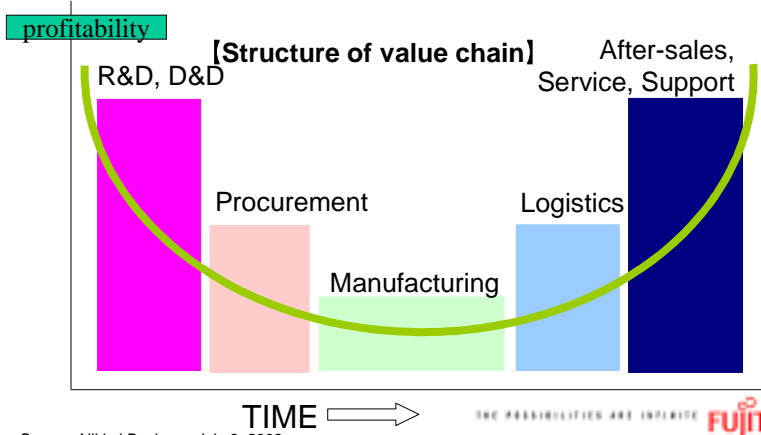


Japanese position in international trade



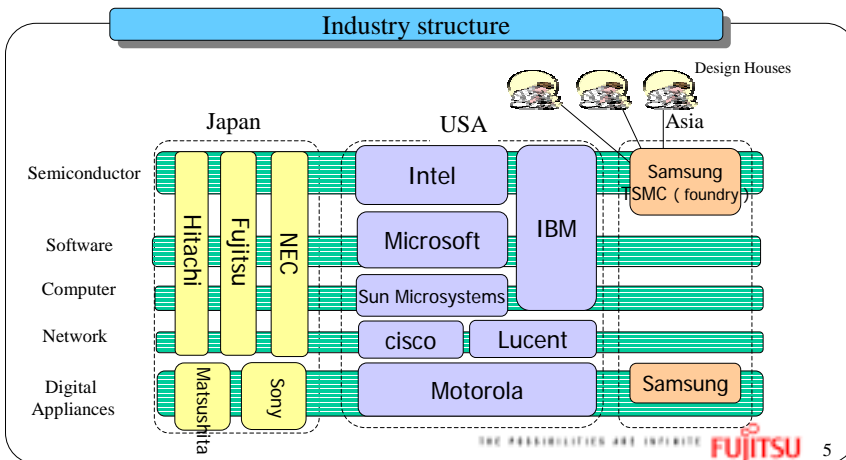
Value-chain of IT equipments

- Integrated approach VS Modular approach
- US Fabless (silicon valley) and Foundry (Taiwan)
- Japan does everything at home.

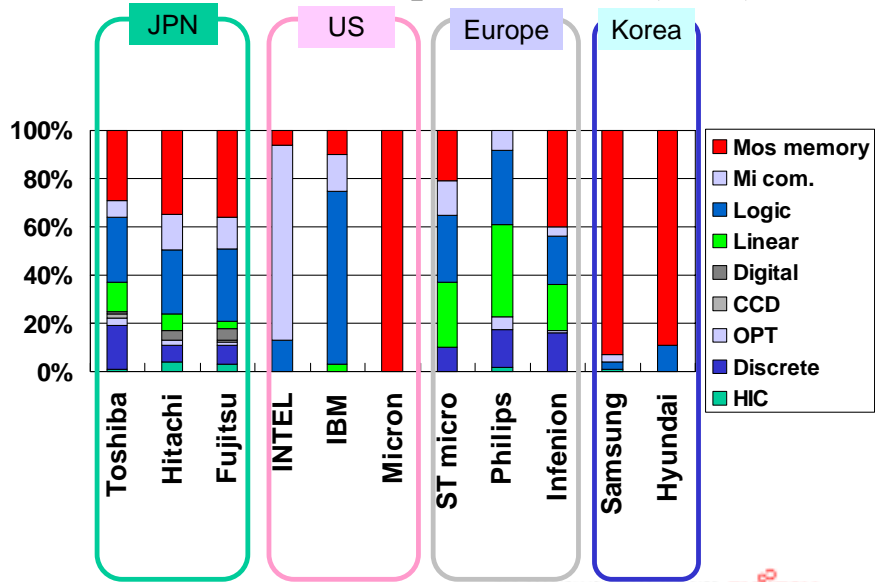


Comparison of Industry Structure (METI)

- US and Asia realized high profitability by focusing on the areas of strength
- Japan marked low profit as it spread its resources to all fields
- As a result, Japan was driven into a vicious circle of low investment and poor competitiveness



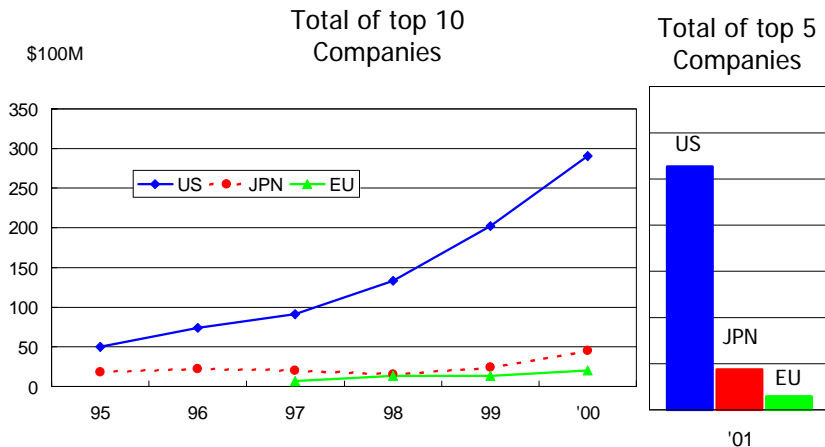
Semiconductor product mix (2000)



Source: Semiconductor Industry Research Institute Japan

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Procurement of components from Taiwan



Source: adapted from Ministry of Economic Affairs (Taiwan)

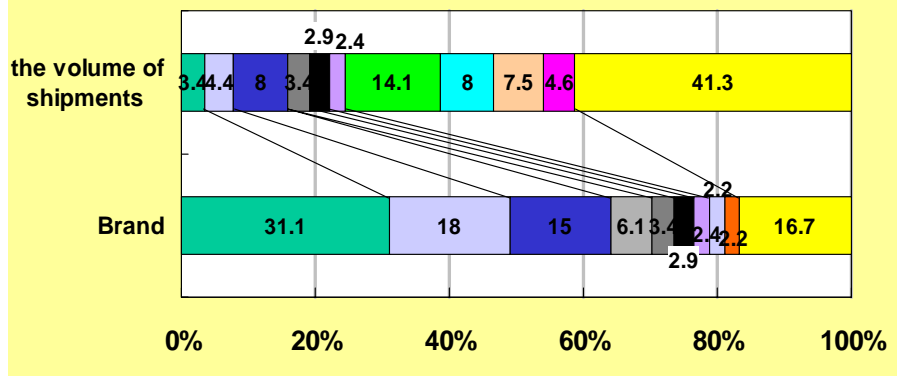
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US Trade in IT products

(millions of Dollars)	2001	2002	2003
Exports of goods, balance of payments basis, excluding military	718,712	681,874	713,761
Computers, peripherals, and parts	47,555	38,553	39,928
Semiconductors	45,066	42,235	46,158
Telecommunications equipment	27,874	22,208	20,748
Other office and business machines	2,894	2,023	1,924
Imports of goods, balance of payments basis, excluding military	1,145,927	1,164,746	1,263,170
Computers, peripherals, and parts	74,001	75,150	76,522
Semiconductors	30,422	26,015	24,608
Telecommunications equipment	24,632	23,135	24,766
Other office and business machines	4,864	4,468	7,136

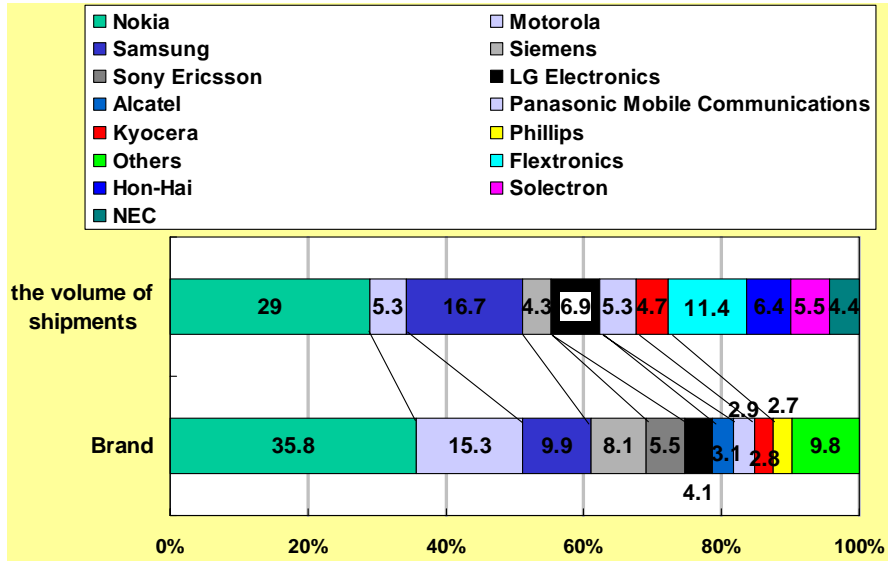
Source: US Department of Commerce

Shares in the global server market (2002)



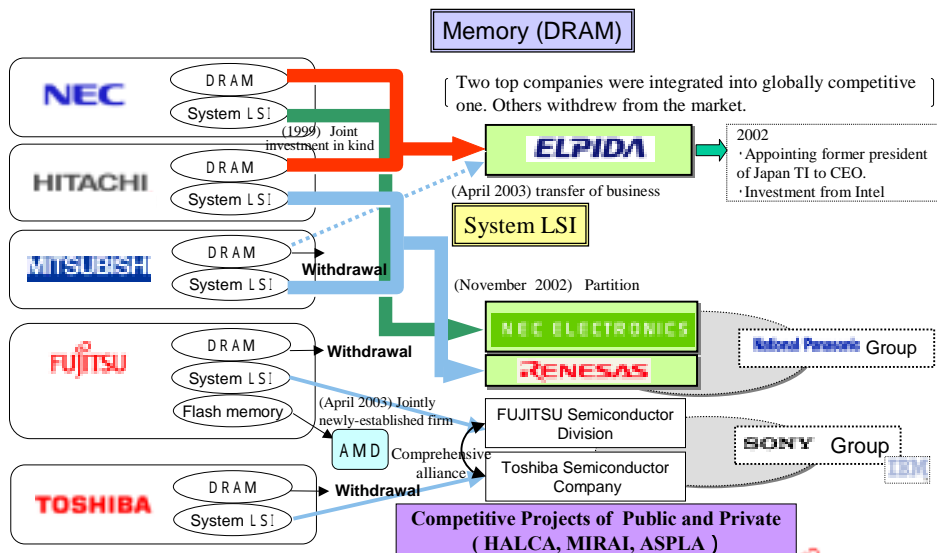
Source: The Semiconductor Industry News, 26 November, 2003

Shares in the global mobile phone market (2002)



Source: The Semiconductor Industry News, 5 November, 2003

Market reorganization in Semiconductor fields



Adapted from METI report

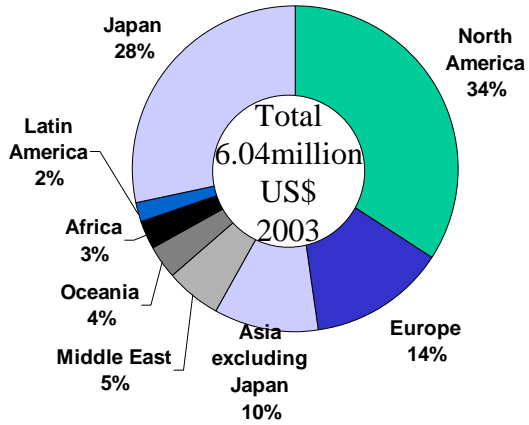
Fortune 500 Computer and Office equipment

	1982 (Mainframe)	1992 (Mini-Computer)	2002 (PC)
1	IBM	IBM	IBM
2	Sperry	Hewlett-Packard	Hewlett-Packard
3	Honeywell	Digital Equipment	Compaq Computer
4	NCR	Unisys	Dell Computer
5	Burroughs	Apple Computer	Sun Microsystems
6	Digital Equipment	Pitney Bowes	Xerox
7	Control Data	Compaq Computer	Gateway
8	Pitney Bowes	Sun Microsystems	NCR
9	Wang Laboratories	Seagate Technology	Apple Computer
10		Wang Laboratories	Pitney Bowes

Top 10 Japanese IT companies

1981	2001
Matsushita	Hitachi
Hitachi	Sony
Toshiba	Matsushita
Mitsubishi Electric	Toshiba
Nihon Electric	NEC (Nihon Electric)
Sony	Fujitsu
SANYO	Mitsubishi
Fujitsu	

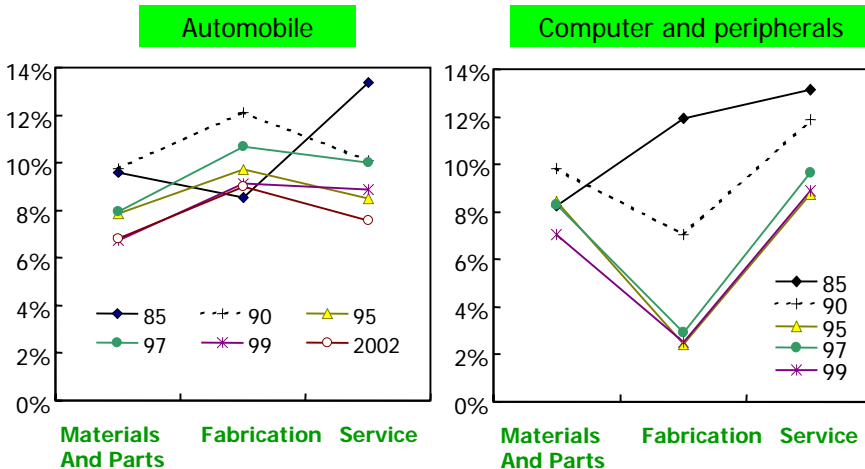
Americanization of Toyota



Source: Asahi shimbun

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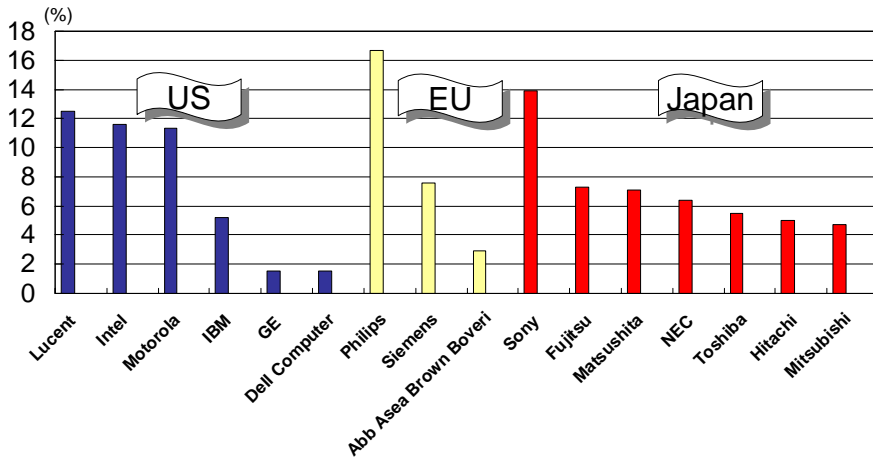
Smile curves applied to automobile and computer industries



produced from input and output table by Fujitsu Research institute

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Another evidence of “doing as others do” strategy (2001)



Source: Japan Research Industries Association

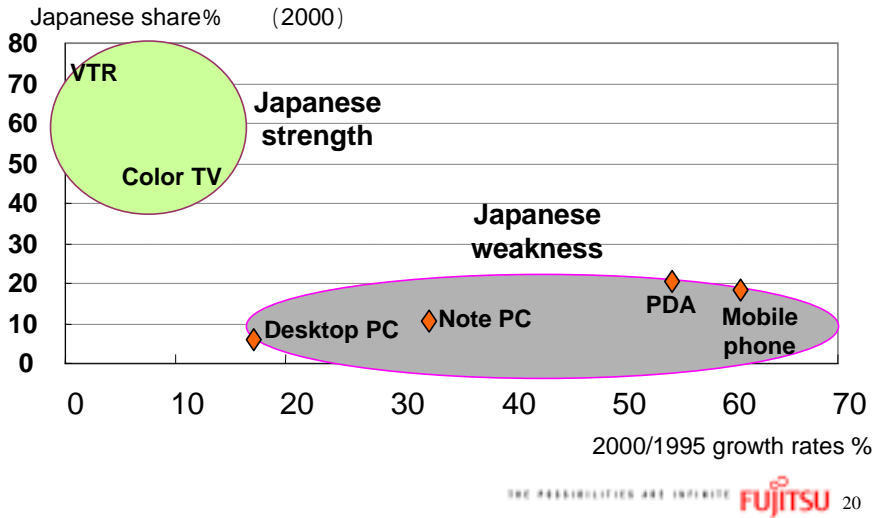
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Where Japanese strength lies in terms of number of parts

[number of parts]
1
10
100
1,000
10,000
100,000
1,000,000
[strength]
Camera, machine tools, TV, auto
[weakness]
chemical catalyst
biotec
Air craft, space
OS

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New product areas



Number of patents granted in the US (2003)

Rank	Company	No	Rank	Company	No
1	IBM (US)	3,439	11	Samsung (Korea)	1,316
2	Canon(JPN)	1,997	12	Mitsubishi (JPN)	1,265
3	Hitachi (JPN)	1,906	13	Toshiba (JPN)	1,217
4	Matsushita (JPN)	1,821	14	NEC (JPN)	1,198
5	Hewlett-Packard (US)	1,763	15	General Electric (US)	1,139
6	Micron Technology (US)	1,708	16	AMD(US)	908
7	Intel (US)	1,595	17	Fuji Photo Film (JPN)	809
8	Phillips (Holland)	1,355	18	Seiko Epson (JPN)	779
9	Sony (JPN)	1,354	19	TI (US)	771
10	Fujitsu (JPN)	1,338	20	Bosch (Germany)	758

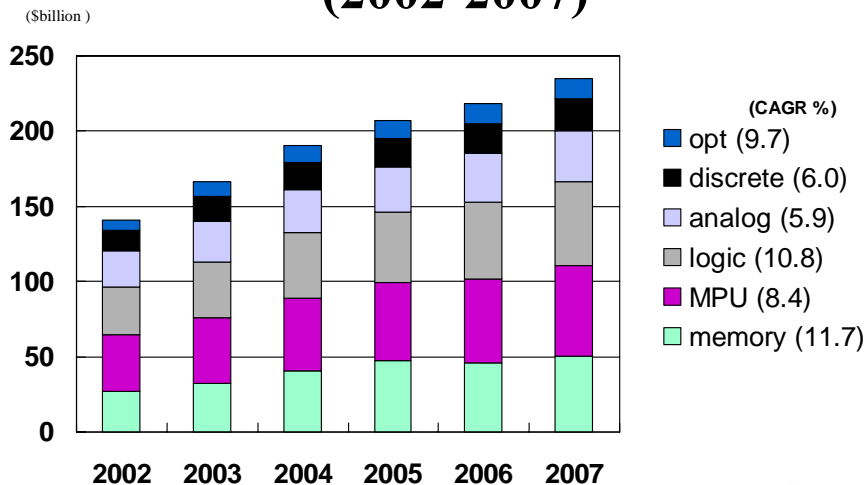
Share of semiconductor in the world Top 20 2003

Company Name	2003 Revenue (Millions of US\$)	Percent Change	Percent Total
Intel	27,036	14.1%	14.9%
Samsung Electronics	9,675	10.6%	5.3%
Renesas Technology	7,971	NM	4.4%
Texas Instruments	7,850	20.2%	4.3%
Toshiba	7,571	17.9%	4.2%
STMicroelectronics	7,238	13.9%	4.0%
Infineon Technologies	7,109	32.3%	3.9%
NEC Electronics	5,705	8.7%	3.1%
Freecale Semiconductor (Motorola)	4,629	-3.7%	2.5%
Philips Semiconductors	4,512	3.5%	2.5%
Matsushita Electric	4,016	22.4%	2.2%
Advanced Micro Devices (AMD) / Spansion	3,939	48.0%	2.2%
Sony	3,558	27.5%	2.0%
Micron Technology	3,418	18.1%	1.9%
Sharp Electronics	3,075	35.6%	1.7%
Hynix	3,071	28.4%	1.7%
Fujitsu	2,605	-16.0%	1.4%
IBM Microelectronics	2,515	-10.4%	1.4%
Qualcomm	2,466	27.0%	1.4%
Rohm	2,398	1.5%	1.3%
Others	61,368	0.5%	33.8%
Total Revenue	181,725	14.2%	100.0%

Source : iSuppli Corporation, March 2004

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World semiconductor market (2002-2007)

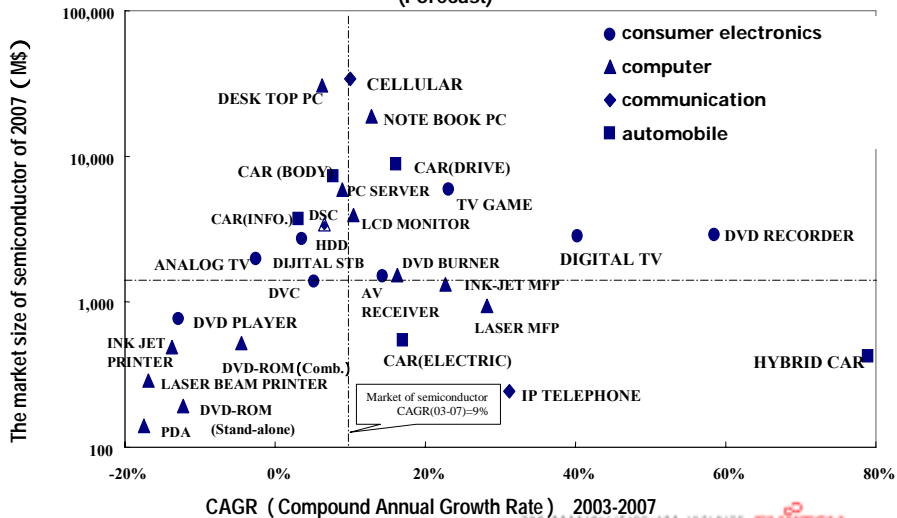


Source JEITA

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The distribution of major electric device- semiconductor market

(Forecast)



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Production of key IT products and components Jan-March 2004

	weight(2000)	change from	
		2000average	Jan-March 2003
Lithium ion battery	41.9	217	123
telecom relay station	5.5	143	51
LCD television	2.2	275	162
Digital camera	16.1	305	121
Car navigation	13.1	226	122
mobile phone	88.3	94	93
fax	8	17	52
circuit switching	24.4	54	123
digital transmission equipment	26.5	10	53
DVD video	6.8	46	100
color TV	10.6	46	118
PHS	6.7	13	37
main frame computer	9.2	111	99
mid-range computer	16.2	129	94
PC	84.1	71	101

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Production of Semiconductor

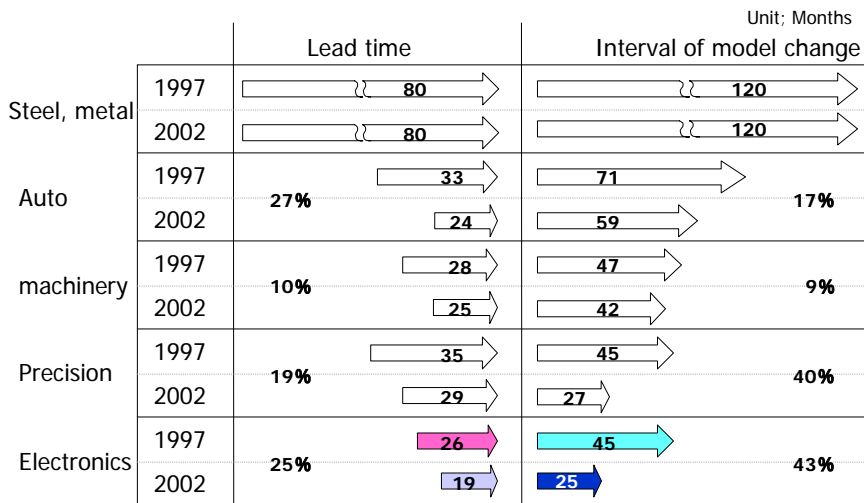
Jan-March 2004

	weight(2000)	change from	
		2000average	Jan-March 2003
Active LC device (large)	52.9	149	122
Active LC device (small)	28.6	371	158
Optical exchange device	42.9	110	120
Moss type device (logic)	150.1	101	121
Moss type device (logic)	116.3	198	135
mixed IC	41	96	105
Micro computer	84.7	103	108
CCD	13	776	178
Passive LC device	30.3	27	79
transistor	33.7	69	115
linear	75.1	84	108

Factories producing 300mm silicon (existing and planned)

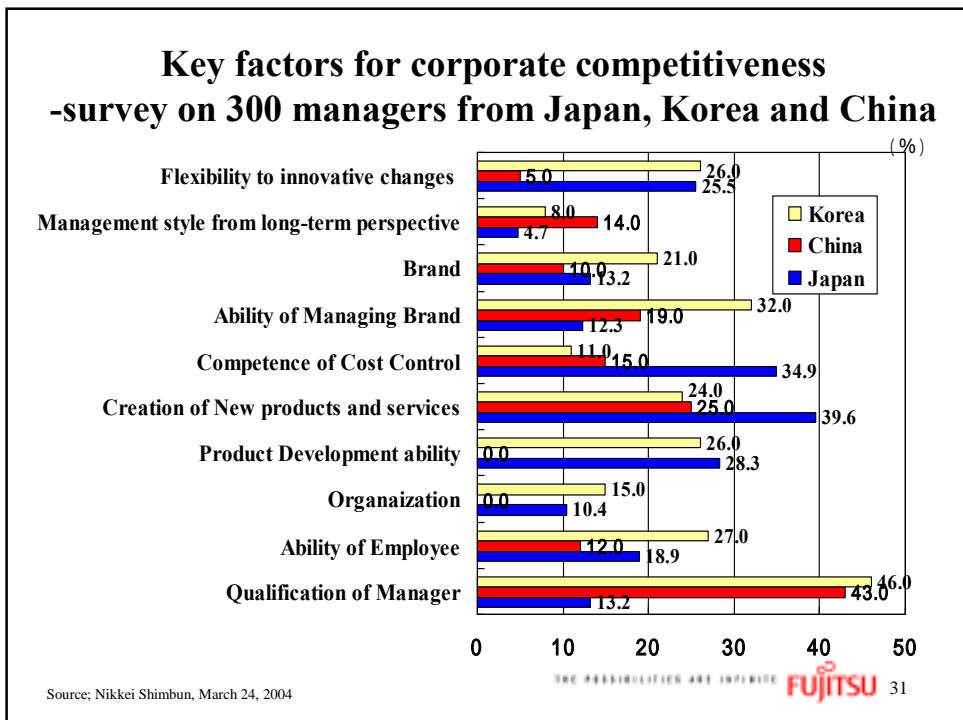
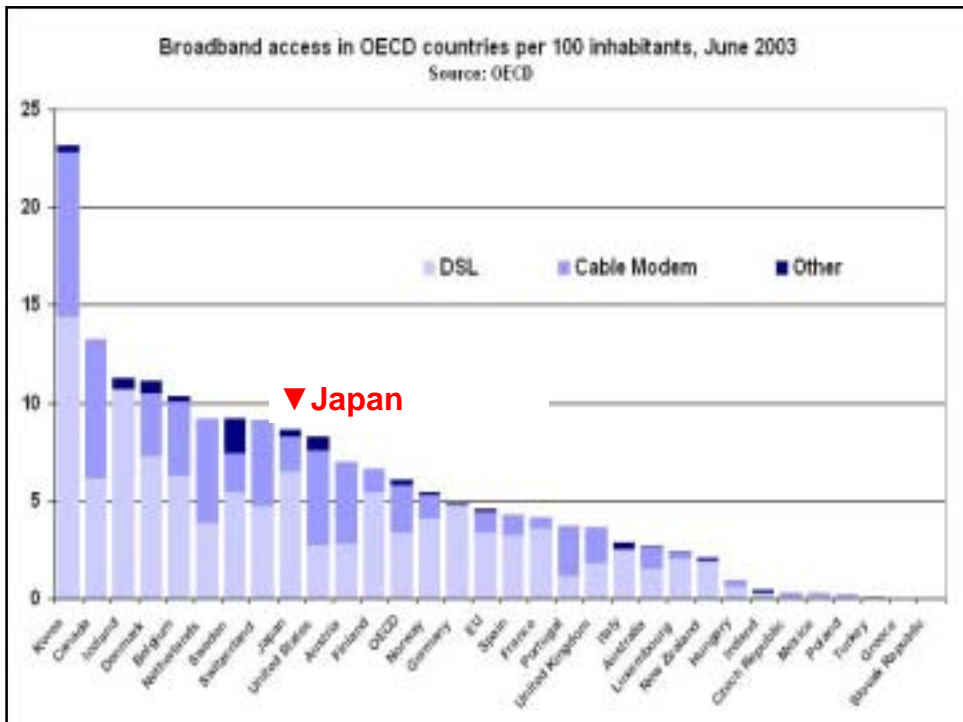
Company	Location	Investment (100million Yen)	Date of Operation
Intel	US	2,100	First half, 2002
	US	2,100	First half, 2002
	Ireland	2,100	2Q, 2002
TI	US	1,500	First half, 2002
IBM	US	3,000	Latter half , 2002
AMD	US	2,000	2004
Samsung	Korea	1,500	1Q, 2002
	Korea	2,000	2Q, 2002
TSMC	Taiwan	2,600	2Q, 2002
	Taiwan	2,300	1Q, 2002
Elpida Memory	Japan (Hiroshima)	1,600	September, 2002
Mitsubishi	Japan (Kochi)	2,000	First half, 2003
Toshiba	Japan (Oita)	2,000	July, 2004
	Japan (Yokkaichi)	2,000	Spring, 2006
NEC Electronics	Japan (Yamagata)	600	Latter half , 2004
Fujitsu	Japan (Mie)	1,600	April, 2005

Shortening lead time

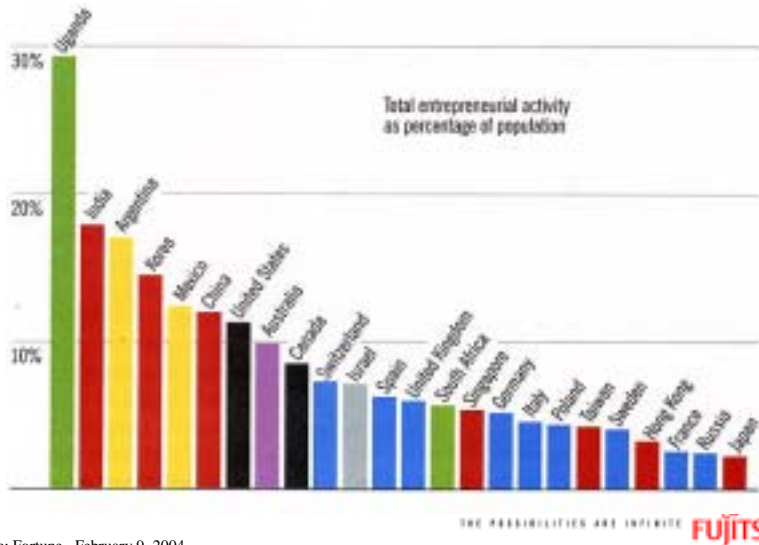


World leading Companies in 2010

Technical fields	Companies	No. of votes
LCD	Sharp	19
IC tag (RFID tag)	Hitachi	18
Photo voltaic system	Sharp	17
Hybrid car	Toyota	15
Fuel cell·Hydrogen-fueled car	Toyota	12
Amino-acid Foods	Ajinomoto	12
High capacity Optical Disk	Sony	11
CCD / CMOS	Sony	11
lithium-ion battery	Sanyo	11
Electronic money	Sony	10
Organic electro luminescence panel	Sanyo	10

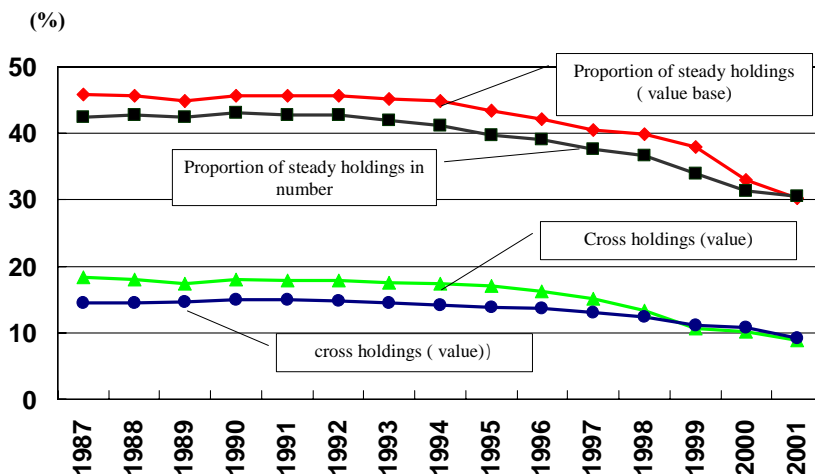


But, entrepreneurial spirit is still weak



Source: Fortune, February 9, 2004

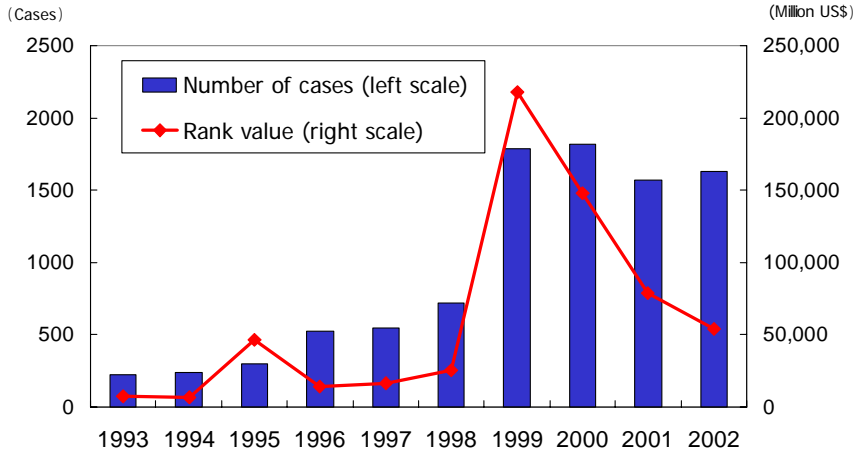
Solid ownership of shares is dissolving. Steady shareholders and tight cross holdings is declining.



Source: White paper on international trade 2003, METI
NLI Research Institute

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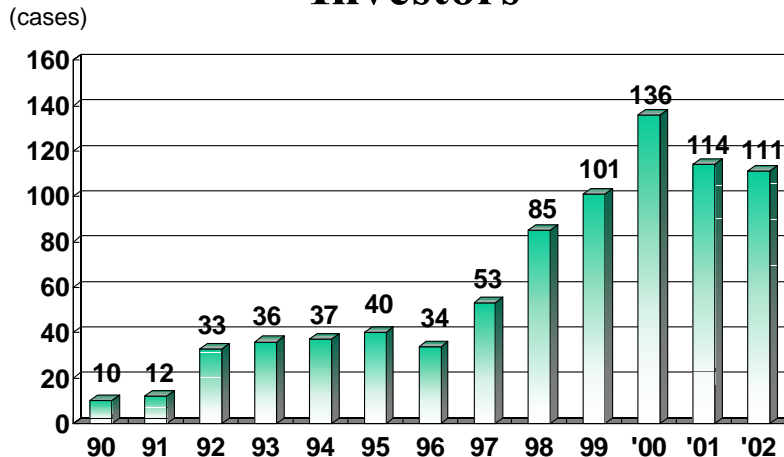
M&As in Japan



(footnote) Rank value=transaction value including net debt

Source: White Paper on International Trade 2003, METI, Adapted from The Thomson Corporation's data

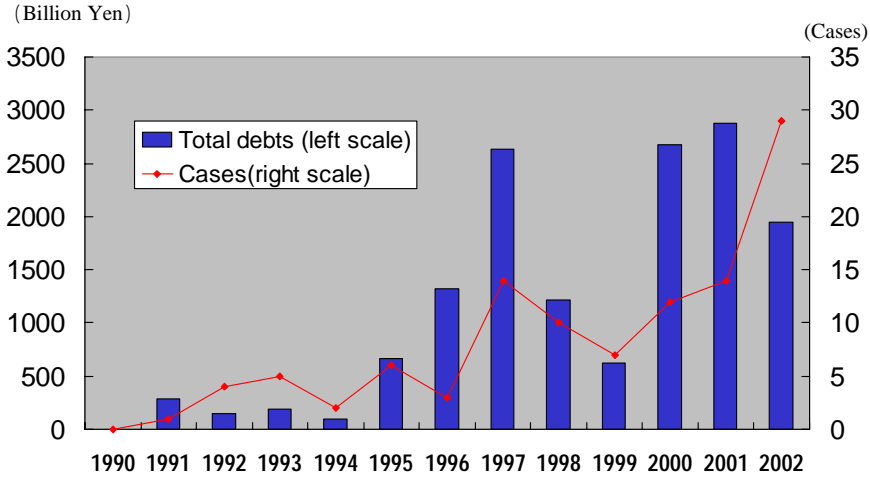
M&As in Japan by Foreign Investors



Source: White Paper on International Trade 2003, METI,

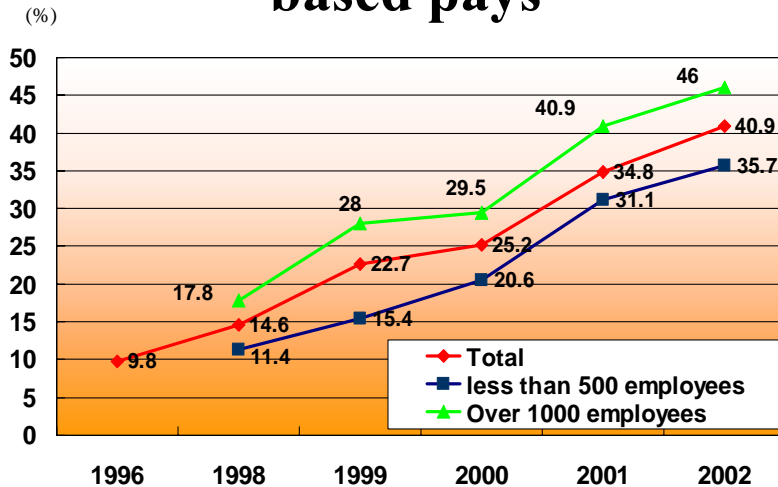
Based on Financial & Economic Research Center of Nomura securities Co., Ltd. research

Bankruptcies of listed companies



Source: White Paper on International Trade 2003, METI

Introduction of performance based pays



(Note) 303 companies from 2547 listed companies

Source: White Paper on International Trade 2003, METI

Ways to build IT system



(%)

	Indirect jobs		Direct jobs		Average	
	JPN	US	JPN	US	JPN	US
Use package soft and very little customization	27.6	34.5	12.9	27.3	17.1	29.3
Use package soft, but customize much	36.3	53.5	22.0	47.5	26.1	49.2
Order made only	33.5	7.2	61.7	19.3	53.6	15.8

Source: WHITE PAPER Information and Communications in Japan 2003,
Ministry of Public Management, Home Affairs, Posts and Telecommunications

THE POSSIBILITIES ARE INFINITE  38

Amount of IT investment per one company

	JPN 	US 
Amount of IT investment per company	\$ 6 million	\$ 9 million
Cost of maintenance and operation relative to total IT investment (%)	69.0	69.3
IT investment ratios to sales (%)	1.3	4.3

Source: WHITE PAPER Information and Communications in Japan 2003,
Ministry of Public Management, Home Affairs, Posts and Telecommunications

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Information sharing through IT network

(%)

Introduction of IT system for purpose of information sharing		JPN	US
Purposes (multiple answers)	Gaining new customers, enhancing customer satisfaction	58.0	80.9
	Advancing quality of jobs	13.5	47.4
	Employee satisfaction and skill improvement	26.2	41.4
	Raising efficiencies of jobs	52.3	52.1
% of firms that share information by IT across departments		51.6	61.7
% of firms that share information by IT with supplier firms, clients and business partners		75.9	94.6
% of firms that set up a special division to control the flow of information		28.5	64.3

Source: WHITE PAPER Information and Communications in Japan 2003, Ministry of Public Management, Home Affairs, Posts and Telecommunications

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IT literacy of employees and training scheme

(%)

		JPN	US
% of firms with training programs		22.1	71.6
	Training is provided, literacy is high	6.8	44.3
	Training is provided, but literacy level is not adequate	15.3	27.3
% of firms with no training program		75.6	25.3
	No training but literacy is high	30.3	13.3
	No training and literacy is poor	45.3	12.0
No answer		2.3	3.0

Source: WHITE PAPER Information and Communications in Japan 2003, Ministry of Public Management, Home Affairs, Posts and Telecommunications

THE POSSIBILITIES ARE INFINITE FUJITSU 41

Conclusion

- IT and globalization intensifies pressure for prompt and timely decisions.
- Firms have to choose strategies out of much wider options than before, outsourcing, M&A, collaborations with competitors.
- Bottom-up approaches, characteristics of Japanese firms, may be disadvantage, esp. in IT sector.
- Capital market has become more fluid, adding to pressure on firms for higher performances
- Products life cycle is getting shorter and shorter, so are lives of firms.
- Challenges for managers will be tougher and tougher