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Transformation of Japanese Enterprises' Strength Through a New Business Model

*A proposal for achieving Science- and Technology- Based Industry-Building in
Japan*

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The Japanese business model for success, the so-called "Catch-Up Model," is no longer effective in the information technology age of today. Yet it appears as though no one - the government, corporations, or the Japanese people - knows what the new direction should be for businesses in Japan.

On the other hand, companies in the U.S. are taking advantage of E-business with the successful Silicon Valley business model. Big companies are enjoying high profit ratios, due in large part to corporate restructuring, concentration of business domains, significant layoffs, and mergers and acquisitions.

The European switch to the common currency of the Euro is triggering a restructuring of business and of business culture. The impact of the new common currency to the European economy appears to be greater than expected.

There is no doubt that both E-business and the Euro will continue to be strong economic forces for both U.S. and Europe for the next 30 to 50 years. In order to vitalize the Japanese economy in the coming decades, we need to determine what new economic model should replace the current catch-up model in Japan. (Chart 1)

BUSINESS MODEL

	OLD	NEW	Keyword
US	Large Co.	Silicon Valley Model → GE Portfolio Model	<i>Net Economy</i>
EUROPE	National	→ Pan Euro Model	<i>EURO Money</i>
Japan	Kaizen Model	→ ?	?

Chart 1

Historically, Japan has followed the U.S. with regard to business models, including such approaches as the business unit system of Jigyobu, international operation, globalization, the division company system, and more. The manufacturing industry was the exception, and Japan developed several unique business technologies in that industry, including KAIZEN, Operational improvements, just-in-time or KANBAN, nil parts inventories, TQC, Total Quality Control, and others. However, after observing these technologies and learning from the experiences in Japan, the U.S. was able to improve on the Japanese operational improvement capability by including information technology in the approach. Just-in-time is now called SCM; TQC is now called Six Sigma, and Japanese enterprises are importing these technologies from the U.S. to use in the manufacturing industry. (Chart 2)

Manufacturing : JAPAN < USA

<i><u>JAPAN 1980s</u></i>			<i><u>USA 1990s</u></i>
JIT KANBAN	+	IT	= SCM
TQC KAIZEN	+	IT	= Six Sigma

⇒ **US Exceeded Japan in Manufacturing**

Chart 2

However, Japan is still very strong in the device industry, including LCD, DVD, Battery, System LSI, KANAGATA, molding, and so on. The U.S. imports significantly from Japan in this industry. This enables companies in the U.S. to save time in the assembly of manufacturing merchandise. In the past, these key devices and box terminals have formed a Two-Circle Model..

But in this age of information technology, these key devices will become useless unless they are built with operating systems (OS) that can communicate with networks?in other words, be part of E-business. This business model?combining OS with the devices?can be called the Manufacturing Three-Circle Model. (Chart 3)

Manufacturing Business Model

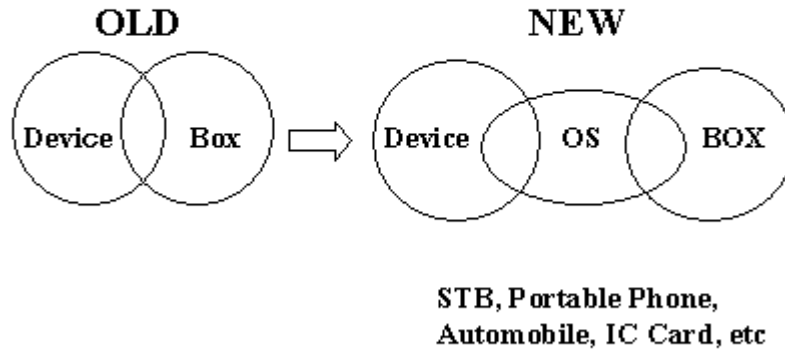
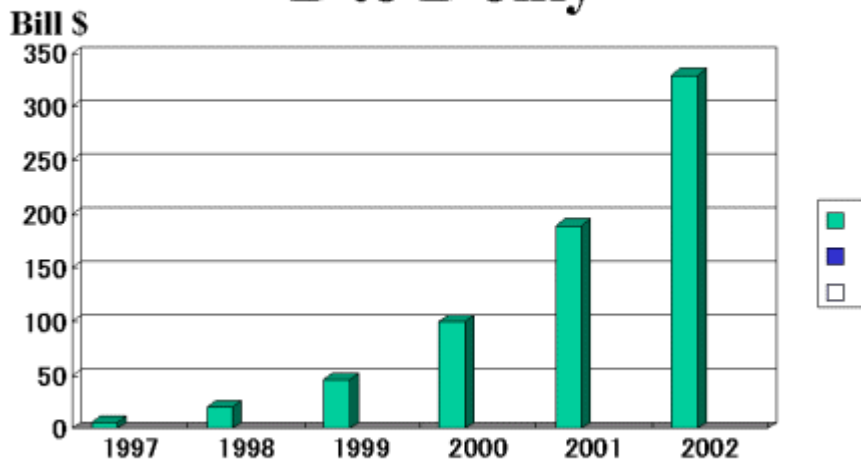


Chart 3

As the famous futurist, Alvin Toffler predicted in his book, the Third Wave, in 1980, the information and knowledge society is already taking over the industrial society, and information-related services and knowledge businesses are starting to dominate the world market. One U.S. research company is forecasting a dramatic increase of network service business over the next four years. (Chart 4)

GE Medical, once a manufacturing company of medical image diagnostic systems, now earns most of its profit primarily from network services, including remote maintenance and repair. The same is true of the GE Airplane Engine Division Company. Instead of manufacturing, these companies now utilize core engineering technology and products to generate revenue from their core technology-related services and software businesses. Their business domain has become service for the user of the manufactured products.

Internet Commerce Market B to B only



Forester Research ,US 1998

Chart 4

Leading manufacturing companies in Japan, like Sony and Toyota, are trying to build a new business domain in this network economy age. With strong sales in consumer equipment (televisions, video recorders, and game machines) as well as content (music, movies, and game software), Sony is developing a network business model. This model can be called the Network Three-Circle Model. (Chart 5)

Sony is changing from an audio/video equipment manufacturing company to an entertainment service company.

SONY`s
NEW BUSINESS DOMAIN

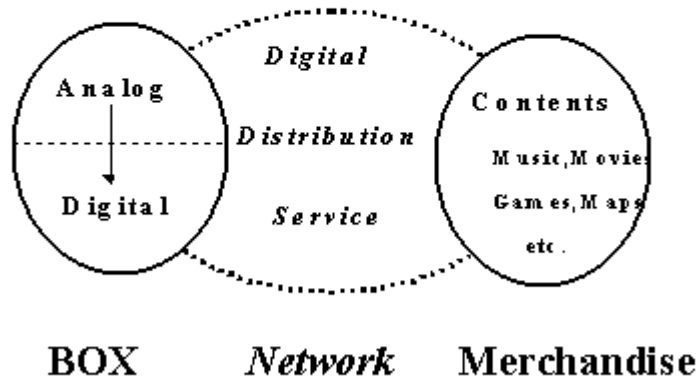


Chart 5

Toyota's Three-Circle Model is essentially the same as Sony's. The company is using the concept of the Intelligent Transport System to change from an automobile manufacturer to a service company for customers who buy Toyota automobiles.

The U.S. is more advanced than Japan in many areas related to network business, such as cable TV, communication satellites, routers, the Internet, network shopping, and so on. This is the current business model in the U.S. Are companies like Sony and Toyota catching up? The answer is no. However, Japan is in a good position to utilize its strength, the Manufacturing Three-Circle Model, to get into the network business. The Manufacturing Three-Circle Model and the Network Three-Circle Model can be combined to make a Five-Circle Model. (Chart 6)

The Five-Circle Model is a chain of rings: DEVICE, OS, TERMINAL BOX, NETWORK, and MERCHANDISE.

Five-Circle Model

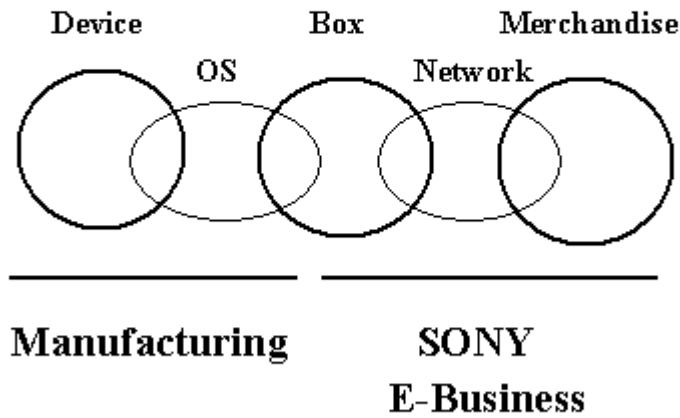


Chart 6

By integrating key devices with an OS, a company can maintain strong leadership in organizing the network structure. WINTEL is a good example. MPU by Intel and WINDOWS OS by Microsoft are also examples of products that have had a strong impact on the emerging use of personal computers (PC) for Internet E-business.

The personal computer, however, is no longer the leader in the current wave of consumer-related business. The PC is not suitable for consumer use. Consumers don't want to wait 30 seconds to start up their terminals or computers. They want to be able to shop immediately after they push the start button. Some consumers prefer to do their network shopping through a cell phone or from their automobiles.

Windows CE, the Microsoft OS for consumer terminals, is too heavy for consumer equipment. Nokia, Erikson, and Motorola are jointly developing a new OS with a UK start-up company for the next-generation cell phone. GM, Ford, Toyota, and DaimlerChrysler are developing their own navigation equipment OS. They know that if they were to utilize Wintel's OS and devices, the majority of the profit would go to Wintel.

Sony and Matsushita are developing their own OS for home-use Set Top Box (STB). Sony is already shipping millions of STB with their own OS, called APERIOS, for U.S. CATV use. When Sony announced the second-generation computer game machine, Play-Station II, Sony's CEO Mr. Idei indicated that the company was now ready to surpass Wintel. With the ability to sell 70 million game machines worldwide in four years, Sony can invest billions of dollars to develop 3D image-processing LSI, system LSI, and OS, which will far exceed the performance of the Pentium II and be ready for network operation. Game machines are the closest thing to home terminals for the network economy in the near future. These LSI and OS could be utilized for other consumer multimedia needs as well.

In the network age, the most influential factor of the Five-Circle Value Chain is the key device and the OS it contains. PCs and game machines have been and will continue to be evidence of

this.

In the U.S., as the network economy continues to grow rapidly, the emphasis in the Five-Circle Value Chain is on service (right side of the chain), not on the device (left side of the chain). If Japan could also approach the model from the device side, that could ultimately prove to be the successful way of obtaining value from the network economy value chain. (Chart 7)

Value Chain Approach : US v.s JAPAN

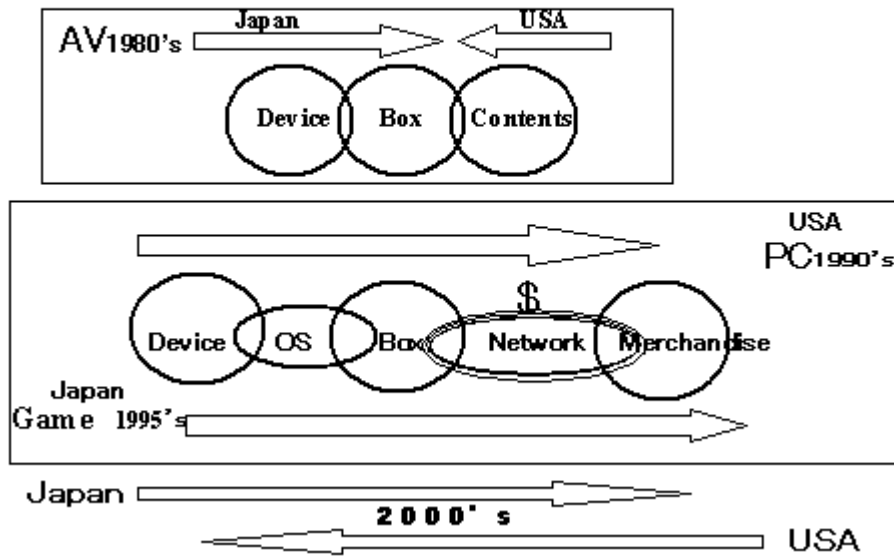


Chart 7

In order to take advantage of the full value of the Five-Circle Model, Japanese device manufactures need to add information technology to their existing analog technology and move their business domain into the Five-Circle Value Chain. (Chart 8)

Move the Japanese Strength into

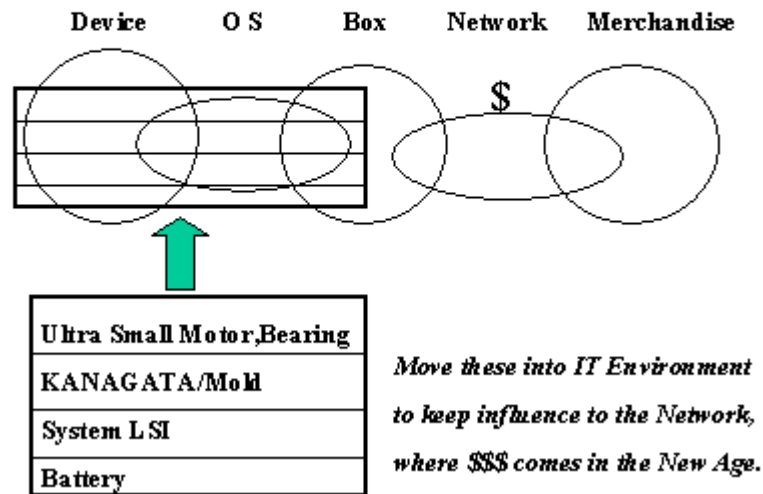


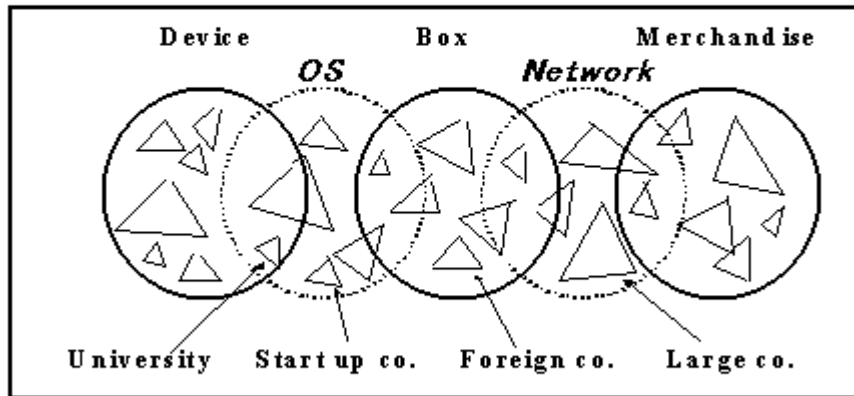
Chart 8

Another issue for Japanese companies is organizational flexibility. In order to make the different elements in the five circles work together most efficiently, each module of the organization must be autonomous. The leader of each organization module should focus on finding the strongest combination of elements. That person should also be an expert in that field.

In the high-speed IT network business environment, the leader of a small module, such as a division or section of a big organization, must be able to make the appropriate decisions, or the combinations will fail. Big corporations need to change their corporate culture so that small divisions of the organization are free to search for the best combinations within the Five-Circle Model. Start-up companies, universities, foreign companies, government research centers, and organizations in other countries or in different industries should also be considered as candidates for combination or partnership. (Chart 9)

As the economist, Joseph Schumpeter, defined in 1912 in his book, *The Theory of Economic Development*, Innovation comes from the "Neuer Kombinationen", New Combination. The concept is still alive today.

Dynamic Module Combination



➡ **Small Independent Organization is the Key.**

Chart 9

Recently we have seen many examples of combinations of big companies and start-ups. A start-up company is now considered to be an equal partner to the big company and not merely a vendor, as in years past. Sometimes the start-up company leads the big company into the Five-Circle Value Chain. (Chart 10)

Big Japanese companies are now more eager to form these types of partnerships with foreign start-ups in Silicon Valley and Europe. (Chart 11)

New Waves in Japan

Technology Oriented Entrepreneur

<u>Company</u>	<u>Founded</u>	<u>Founder</u>	<u>Business</u>	<u>Jointwork with:</u>
• IIJ	'98	Suzuki	B to B Network	SONY, Toyota
• INCS	'90	Yamada	Mold Tooling	HONDA
• Yozan	'90	Takatori	LSI	NTT
• Future	'89	Kanamaru	System Design	Seven Eleven
• Mega Chips	'90	Shindo	System LSI	Nintendo
• Thein	'92	Iizuka	System LSI	AV Makers
• Synthesis	'98	Yoshida	System LSI	Sumitomo Denko
• Kyouden	'83	Hashimoto	Print Board	AV Makers

⇒ Utilize Big Companies as Equal Partners.

Chart 10

Combination of

Japanese Big Co. And Foreign Start up

NTT	US Autowave	CAD Design on line service	M&A
HITACHI	US EDW	Digital Virtual Image	Joint Research
	US Concept Five	IT Data Manage	Get Licence
SHARP	US Nuvomedia	Internet Distribution	Tech.Alliance
SHIMAZU	UK Nordico	Thin Film	M&A
SONY	US Candicent	Display Technology	Joint Research
TAKEDA	US Human Genomu	Bio Medical	Tech.Alliance

Chart 11

The success of these business partnerships shows that the Five-Circle Model is working for

both the big companies and for the start-ups.

Sony and Toyota are already embracing this concept. And some of the new Japanese R&D-oriented start-ups - including Incs, Megachips, Future System, and Rakuten - are strategically expanding their business domains following this concept. (Chart 12)

R&D Oriented Emerging Entrepreneurial Company in JAPAN

Technology	Co.Name	CEO	Found	IPO	Person	\$M	Technical Specialty
Mfg.Tech.	INCS	49	'90	-	110	30	3D Speed Tooling
	SAMCO	57	'79	-	100	33	Thin Film Tech.
System LSI	Megachips	57	'90	'98	90	60	Game LSI
	Thine	51	'92		40	95	AV LSI
	Realvision	45	'96		40	10	3D Image LSI
IT,Network	I I J	52	'92	'99	270	300	Internet Provider
	Rakuten	35	'97	-	40	60	Network Mall
	Mag Mag	29	'97	-	10	5	Mail Magazine
	Future	44	'89	'99	150	40	System Integration
Game Soft				many companies			

Chart 12

This Five-Circle Model could be the catalyst for new industry development in Japan. R&D-oriented start-ups and large corporations and companies in the manufacturing, service, and finance industries will enjoy both competition and collaboration with each other in a very unique way.

By leveraging the Japanese industry's strength, the *key devices* will have a significant influence on the growing industry, the *network economy*.