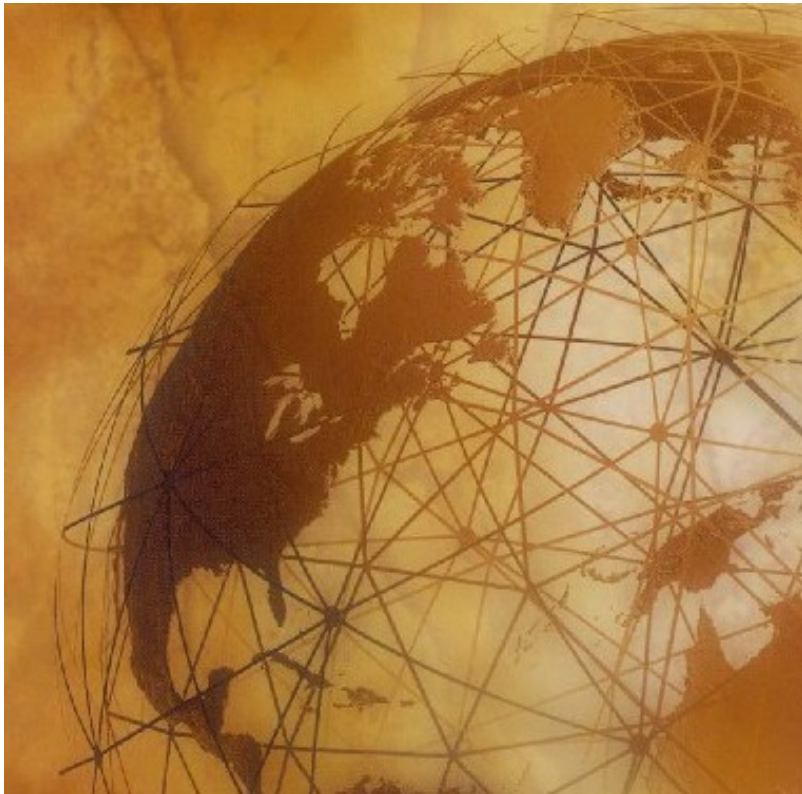




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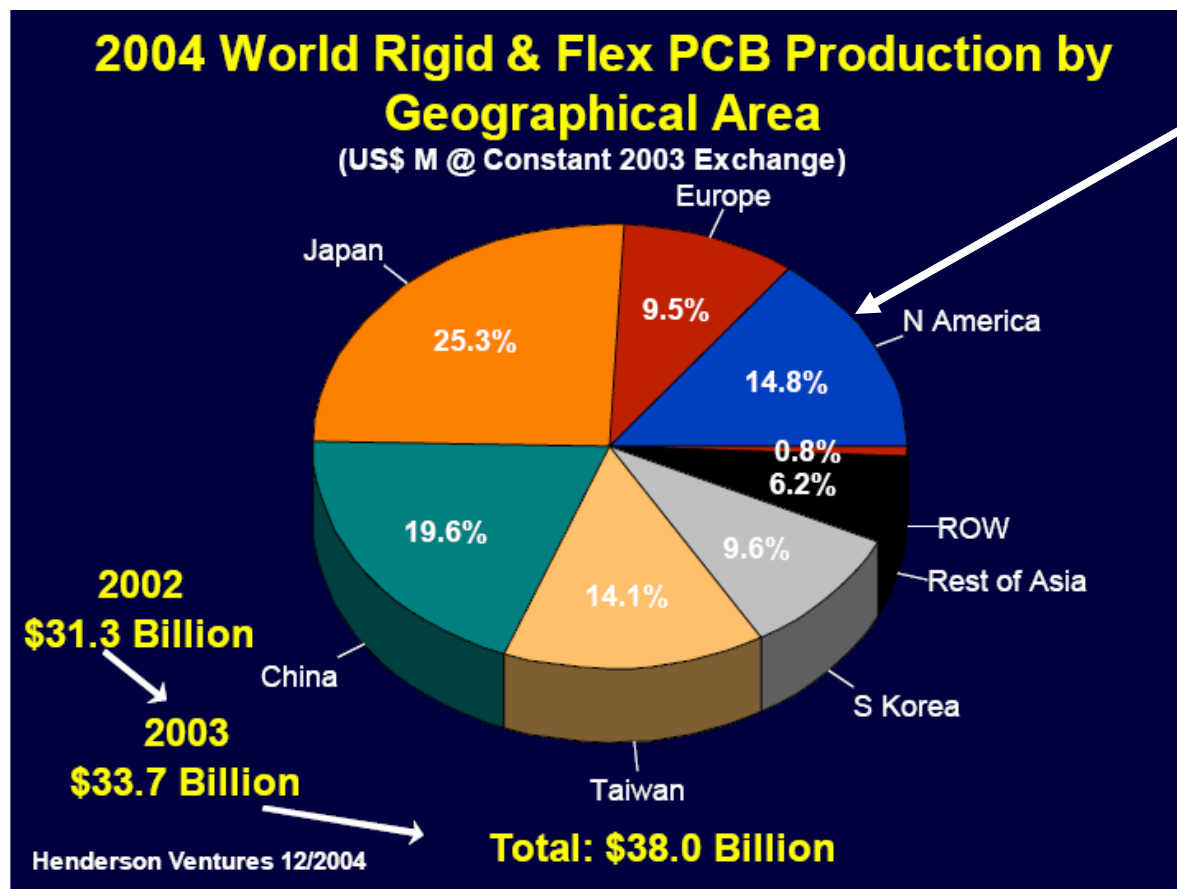
# **Matrix Market Update**

**July 21, 2005**



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# NA Global Contribution Shrinks



**Was 27% in 2000!**



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# NA PWB Manufacturer Consolidation

## Top 10 PCB Companies 2000 vs 2003

	2000	US\$M	2003	US\$M
1	Sanmina-SCI	US 1,500	1 Nippon Mektron	JP 1,117
2	Viasystems	US 1,250	2 CMK	JP 1,049
3	CMK	JP 1,112	3 Ibiden	JP 1,027
4	Ibiden	JP 1,083	4 Hitachi Group	JP 685
5	Hitachi Group	JP 973	5 Shinko Denki	JP 636
6	Nippon Mektron	JP 905	6 Unimicron	TW 609
7	Compeq	TW 802	7 Samsung E-M	KR 545
8	Tyco	US 780	8 Compeq	TW 462
9	Fujitsu	JP 624	9 Nanya PCB	TW 453
10	Multek	US 600	10 Daeduck Group	KR 422
	<b>Top 10 Total</b>	<b>9,629</b>		<b>7,005</b>

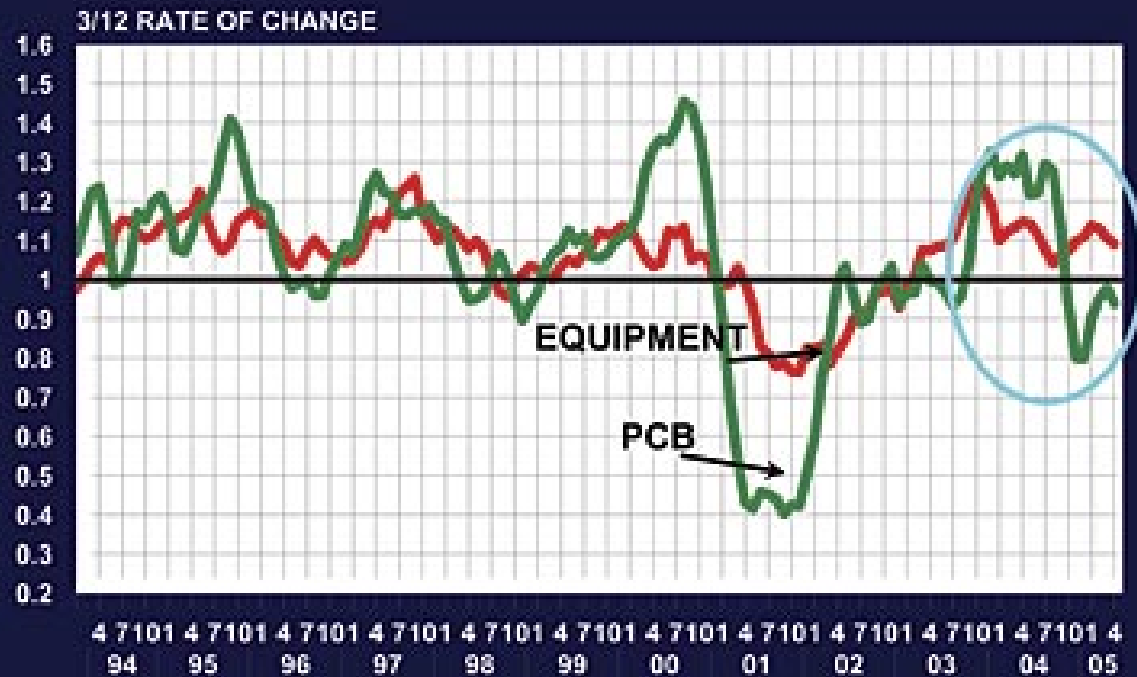
Dr Hayao Nakahara, N.T. Information Ltd, 12/04



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# Slight Recovery in 2005

## U.S. Electronic Equipment vs Rigid PCBs \$ Order Growth



IPC & U.S. Dept of Census



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# PCB's 2005 Flat!

## PRESENT GROWTH RATES (%) U.S. ECONOMY & ELECTRONICS INDUSTRY

	LATEST MONTH	ANNUAL GROWTH RATE	3-MONTH GROWTH RATE
RIGID PCB ORDER \$	5/05	98.3	99.9
RIGID PCB SHIPMENT \$	5/05	102.6	90.1
FLEX CIRCUIT ORDER \$	5/05	130.1	60.6
FLEX CIRCUIT SHIPMENT \$	5/05	143.2	115.1
SEMICONDUCTOR SHIPMENT \$	5/05	114.3	101.8
<b>ELECTRONIC EQUIPMENT ORDER \$</b>			
COMPUTER & RELATED	5/05	115.4	121.3
COMMUNICATIONS	5/05	109.5	103.7
MEDICAL, MEASUREMENT & CONTROL	5/05	102.2	96.7
SEARCH & NAVIGATION	5/05	103.1	101.0
TOTAL ELECTRONIC EQUIPMENT	5/05	108.5	106.9
INDUSTRIAL PRODUCTION	5/05	104.0	103.2

NOTE: 3 month growth rates compare most recent  
3 months to same 3 months one year earlier

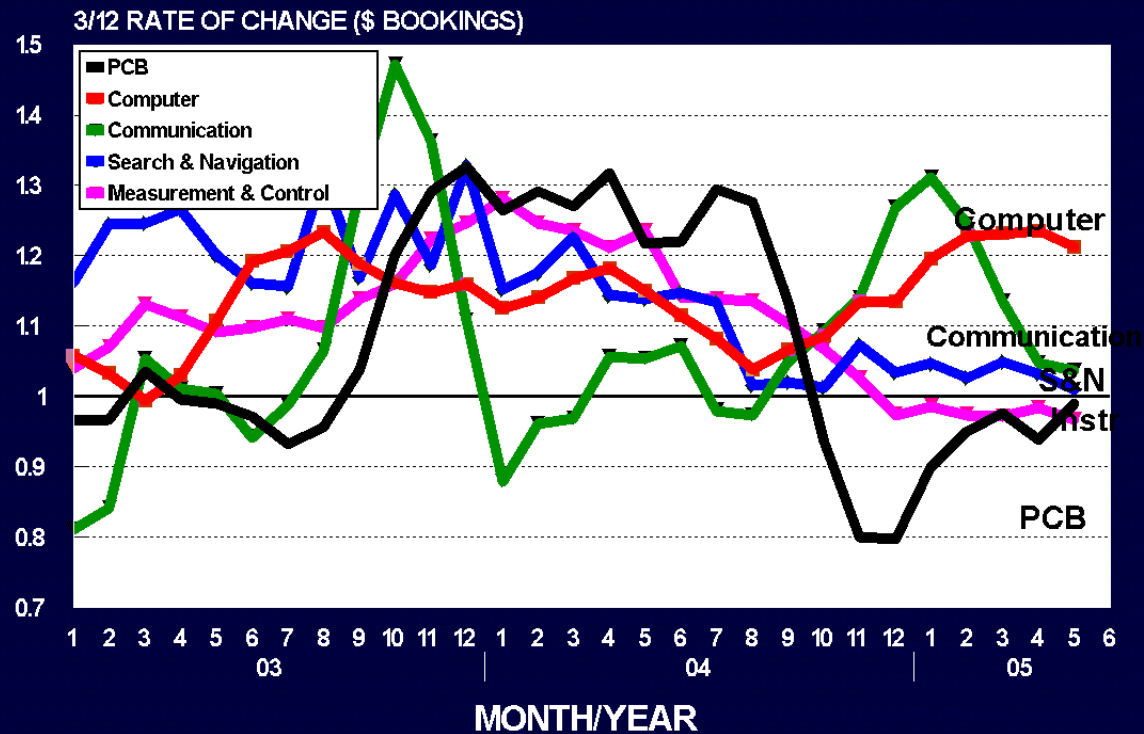
*Matrix Market Update*



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# Bookings Flat

## US RIGID PCB vs ELECTRONIC EQUIPMENT BOOKINGS



US Bureau of Census & IPC T/MRC

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# US Slowdown in 2006?

## Electronic Equipment Production Growth

Current \$ Growth Rates Converted @ Constant Exchange Rates

	2003	2004	2005	2006	2007
World	6.8	10.2	6.9	5.1	8.2
USA	4.3	10.4	6.3	3.6	6.2
W Europe	-1.5	3.1	2.4	2.8	5.5
Japan	6.9	2.3	1.5	0.5	4.2
Four Tigers	5.1	14.1	7.7	5.2	7.6
China	32.6	26.7	17.5	14.1	17.2

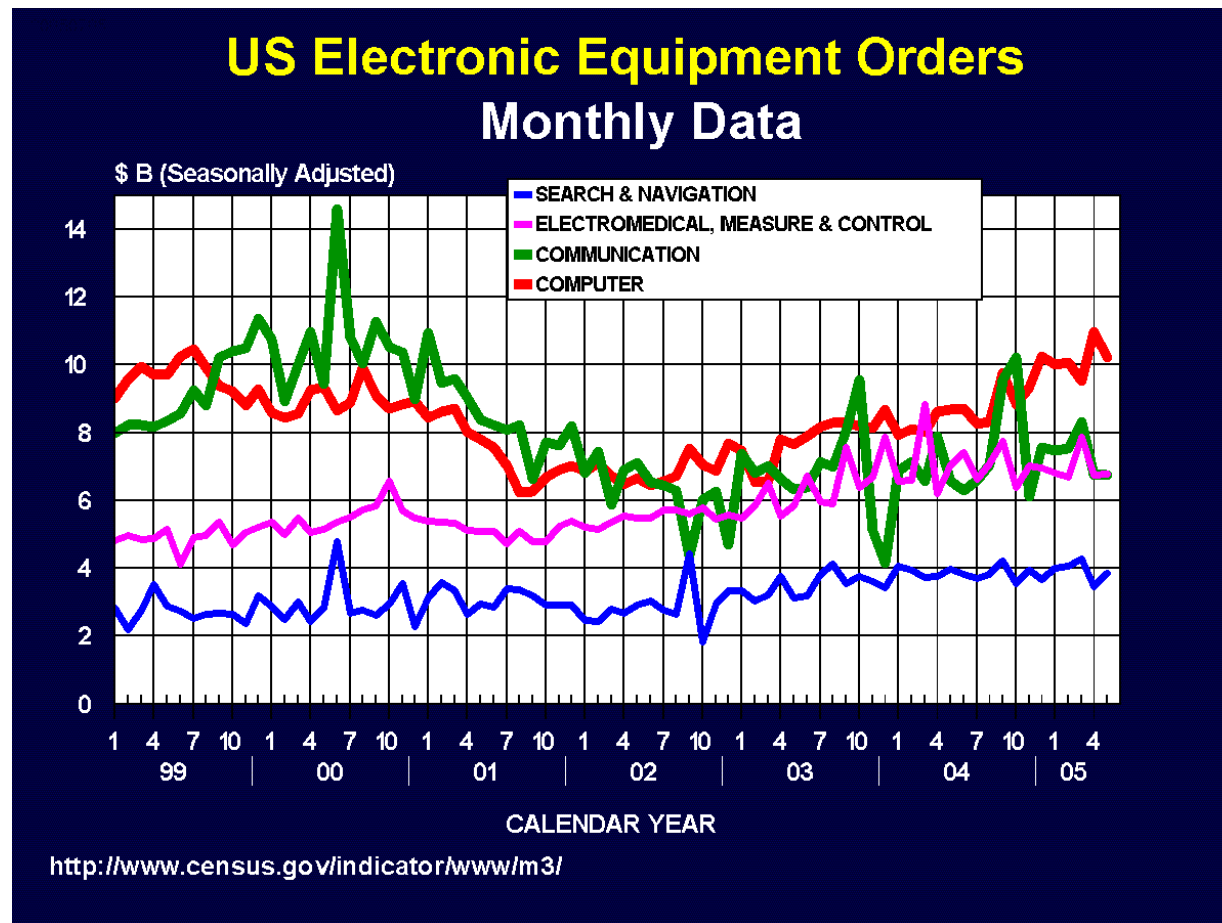
Henderson Ventures 4/2005  
[www.hendersonventures.com](http://www.hendersonventures.com)





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# Computers Remain Strong....However.





# Trends and Observations

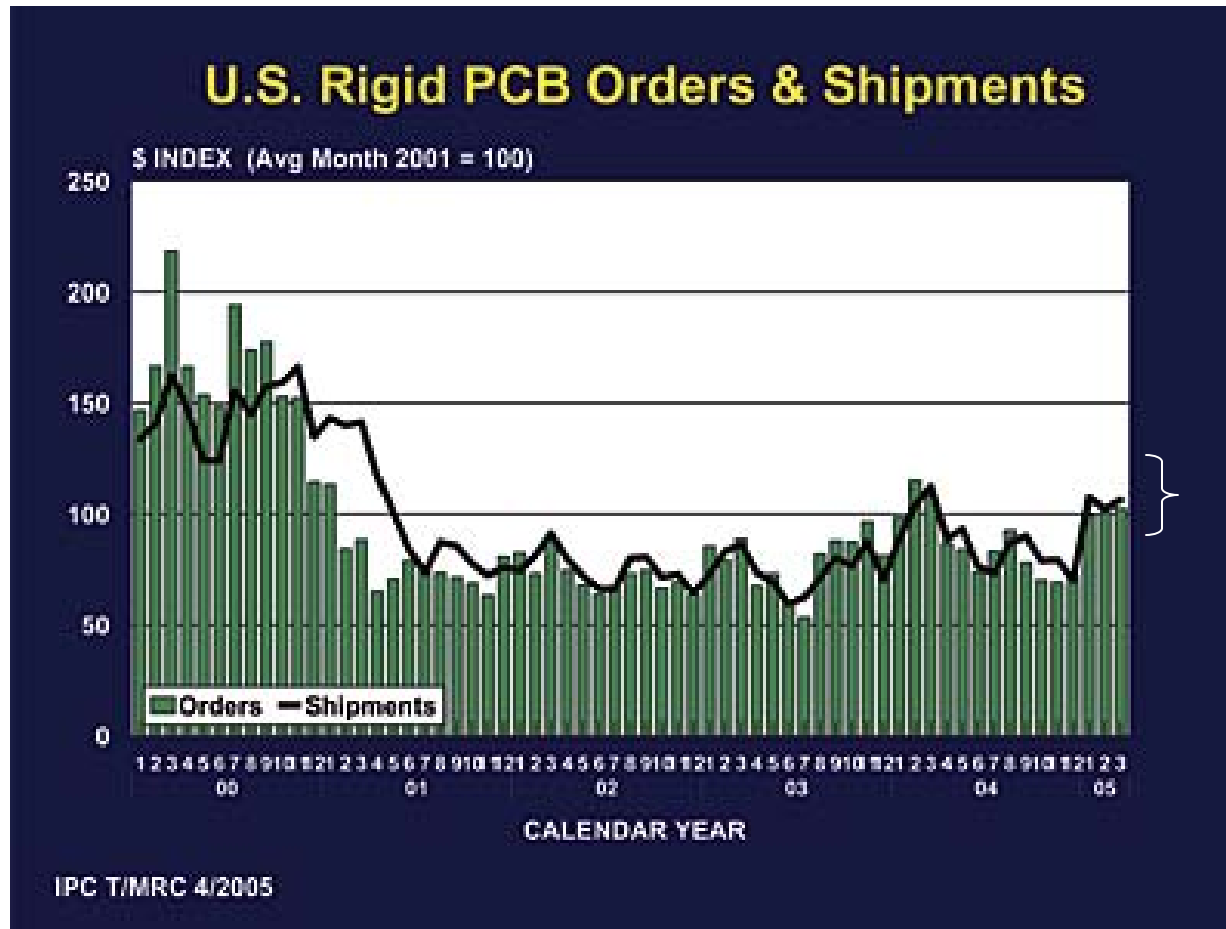
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# North American PWB Market – Flat but Stable

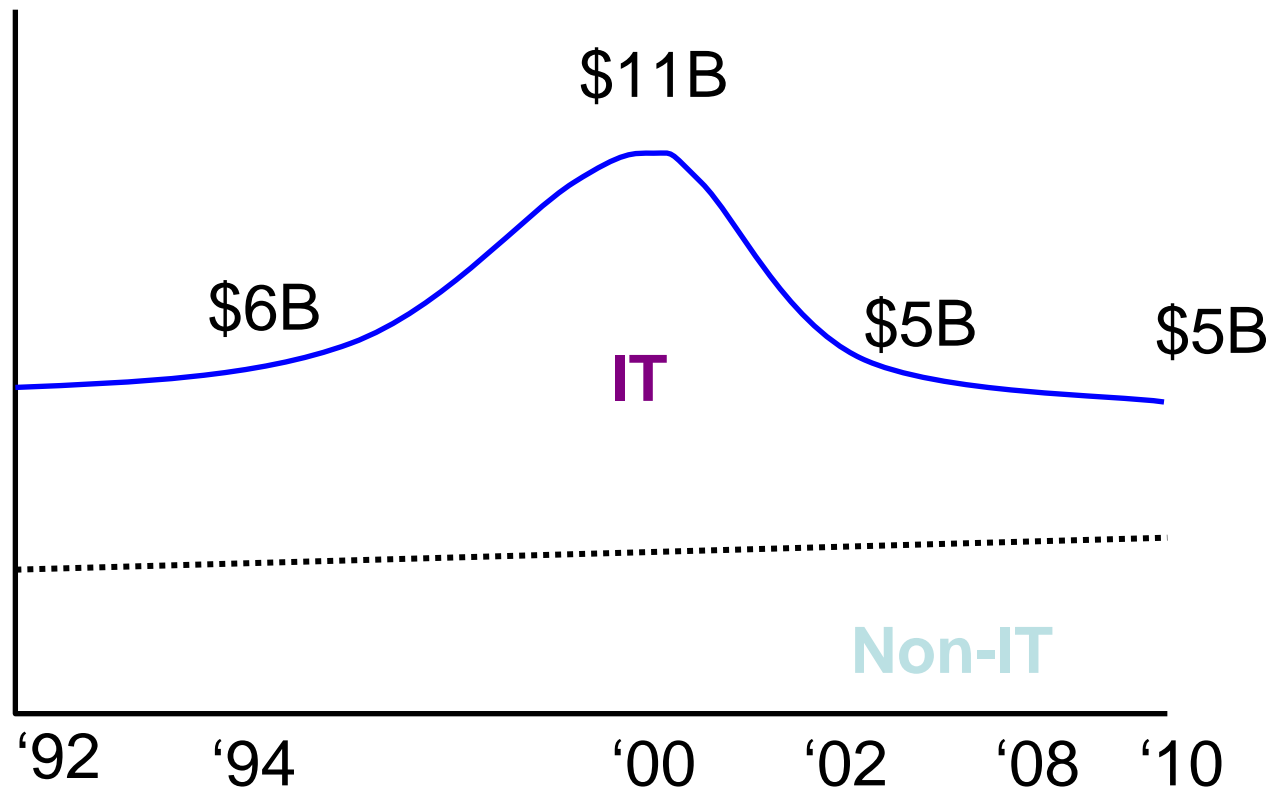


\$5B Avg.



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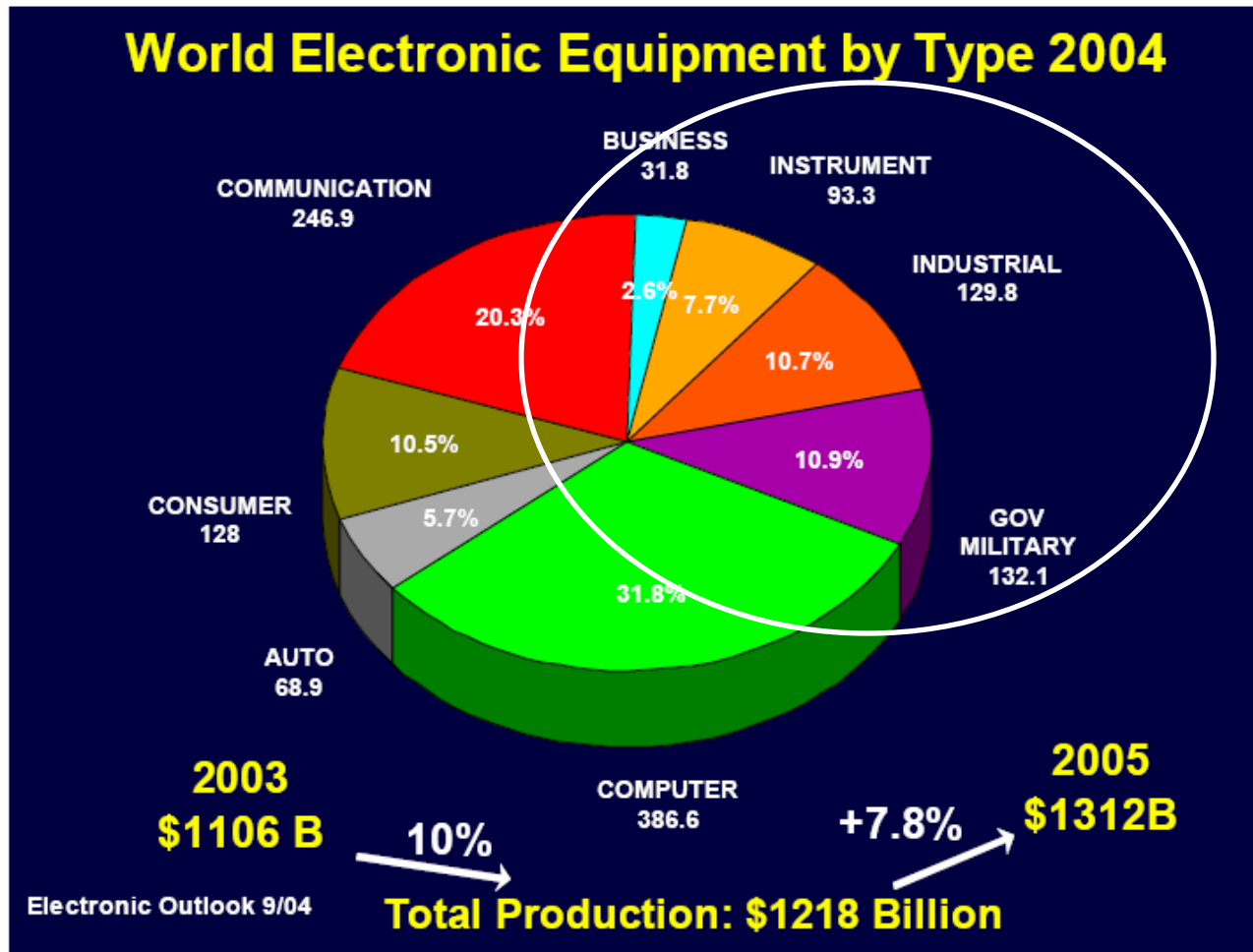
## North American PWB Market Stable and Growth in Non-IT





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# Increasing NA Market Specialization



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## Much Transfers..... Much Stays Behind

Segment	PWB	QTA/Mid-Vol	High Volume
IT	High Layer	●	Shift to China
	Low-Mid	Shift to China	Shift to China
Non-IT		●	●

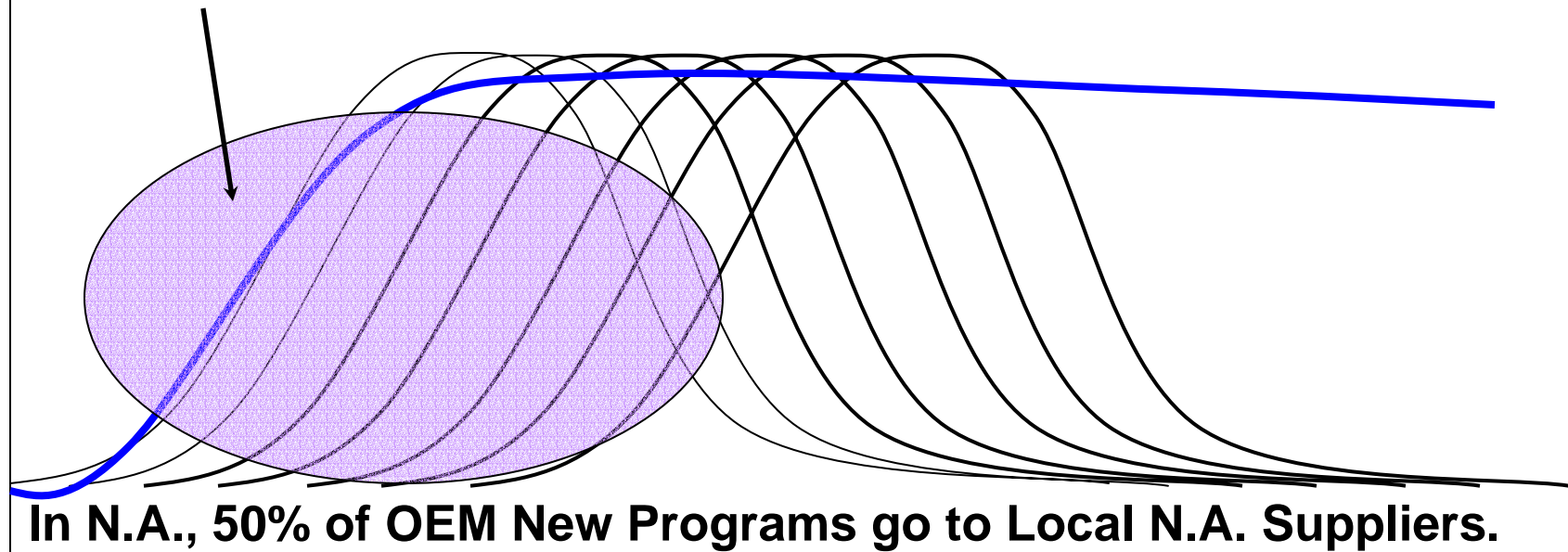


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## New OEM Program Development Cycle

IT Demand  
QTA – Mid-Vol.  
Remains in NA

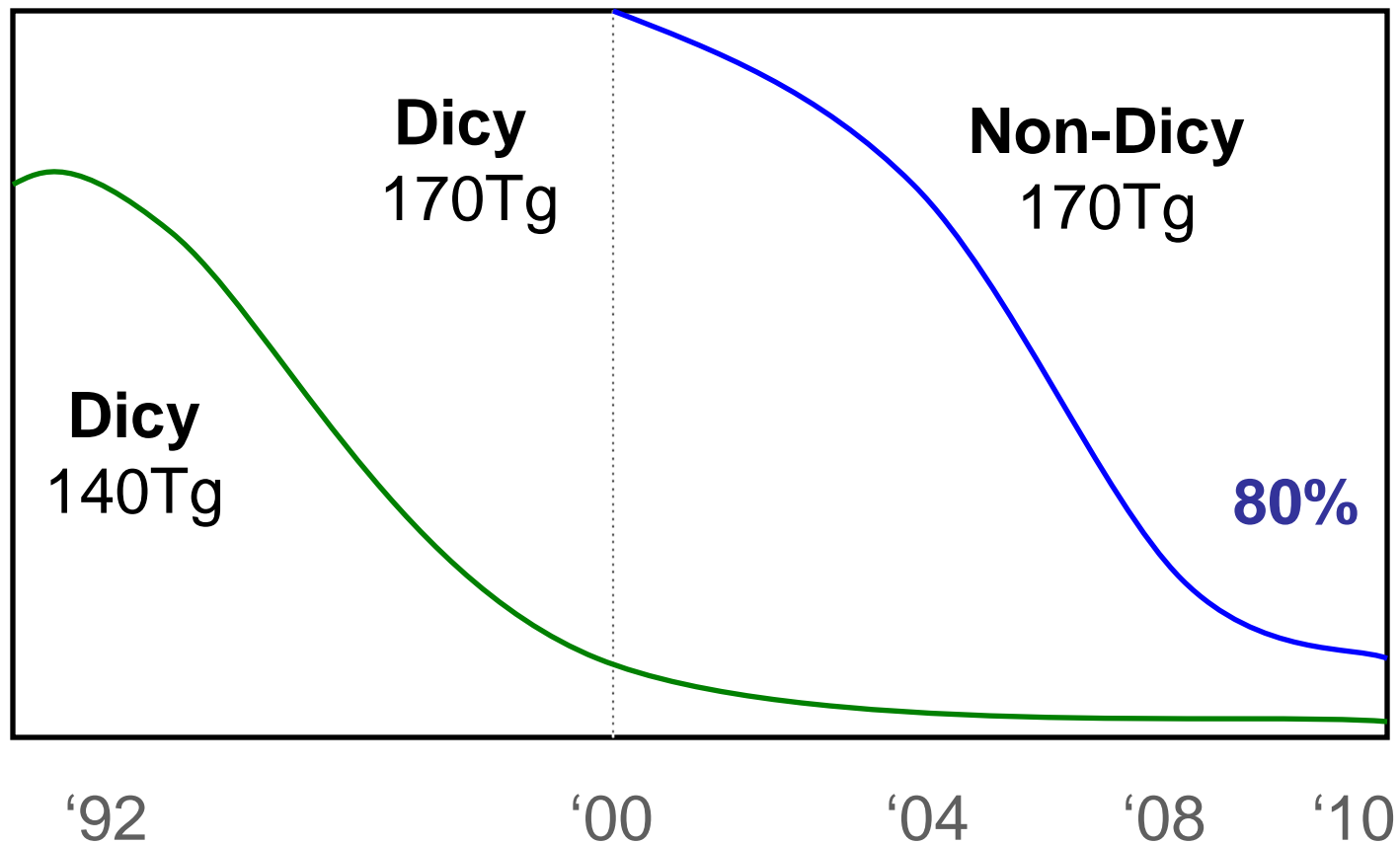
Volume  
**Shift to China/Asia**





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## Pb-Free Legislation Pushes Use of Phenolic Materials





# OEM Trend

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There is a trend to “**near-shoring**” where manufacturers in the US and W Europe are putting their investments closer to domestic operations, as part of an effort to simplify supply structures that reflects a **disappointment with the profitability of Chinese ventures.**



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## **PWB Materials Supply Base Adopts to Changes**

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- Increase in Asian Suppliers.
- Decline in Domestic Sales and Service Support.
- Growth in Distribution Participation.
- Adaptation of Asian Business Model.