

Product Management through the Ups and Downs of a Cyclical Industry

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Asyst Technologies, Inc

SVPMA Dec 7, 2005



In 1593, tulips were first brought from Turkey to Holland.





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The market
flourished.

But, in 1637,
the tulip
market
suffered a
correction



Many traded their entire estate for a single tulip.

They found out the tulip was only worth the price of an onion.



Agenda

- Introduction
- Product Management
Communication Enhancement
- Analyzing Cyclicalality
- Guidelines for Product Managers

Asyst Technologies Inc.

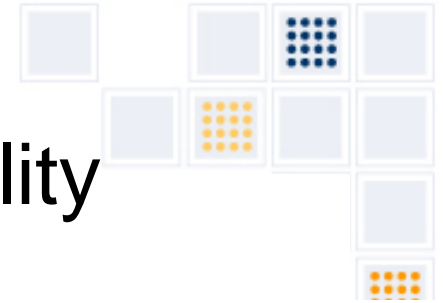
Introduction



- ❑ Founded 1984
- ❑ Revenues of ~\$600M
- ❑ 850 employees
- ❑ Provides automation solutions optimized for the needs of our global customers in the semiconductor, flat panel display, and related industries.

The Asyst Solution

For a modern Wafer Fabrication Facility



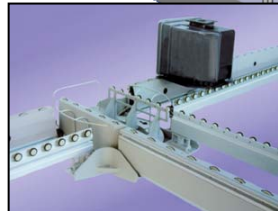
**Isolation
Systems**



**RFID-based
Asset
Management**



**Automated Transport
and Loading System**

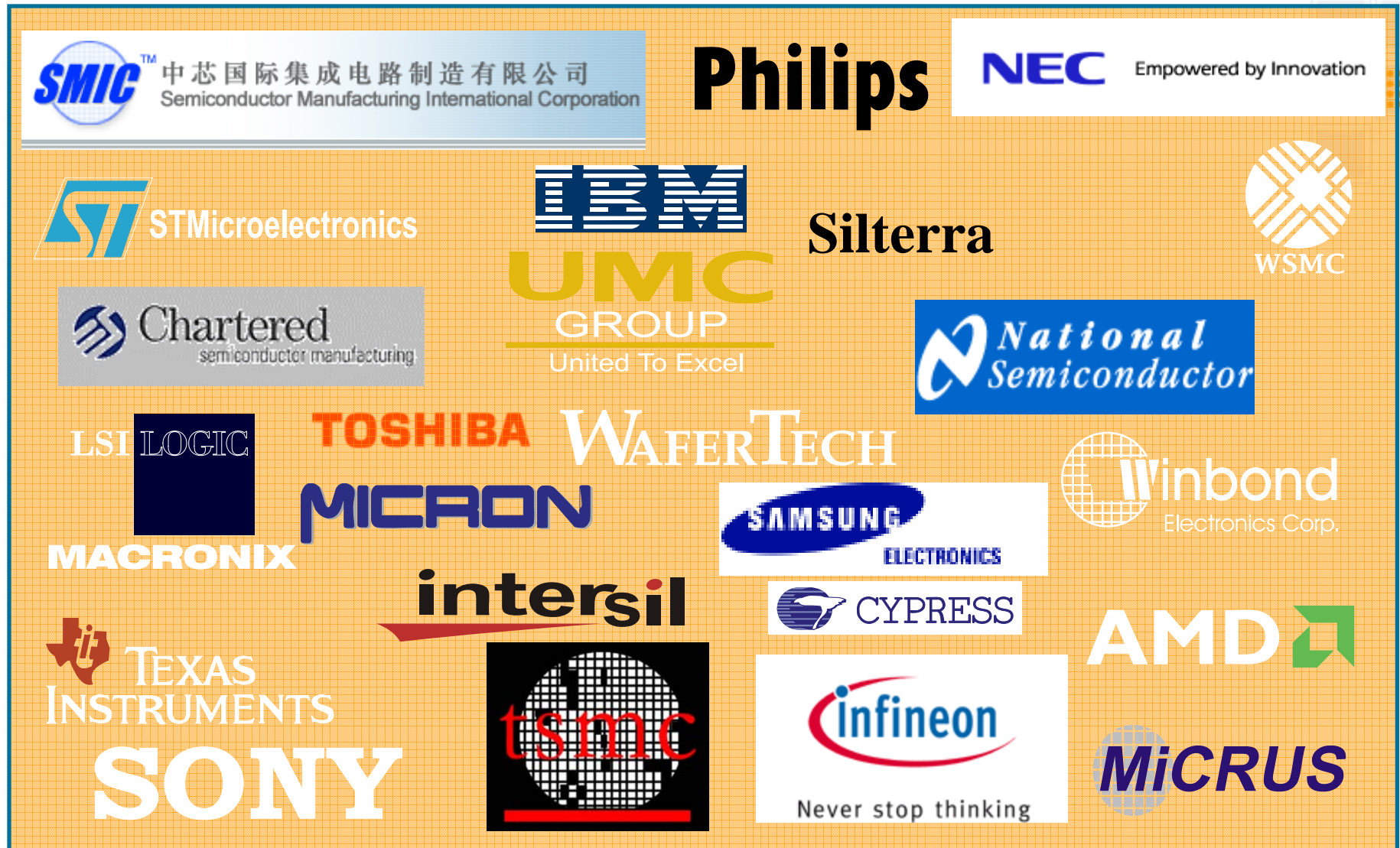


**Substrate-
Handling Robotics**



**Connectivity
Software**

Major End User Customers



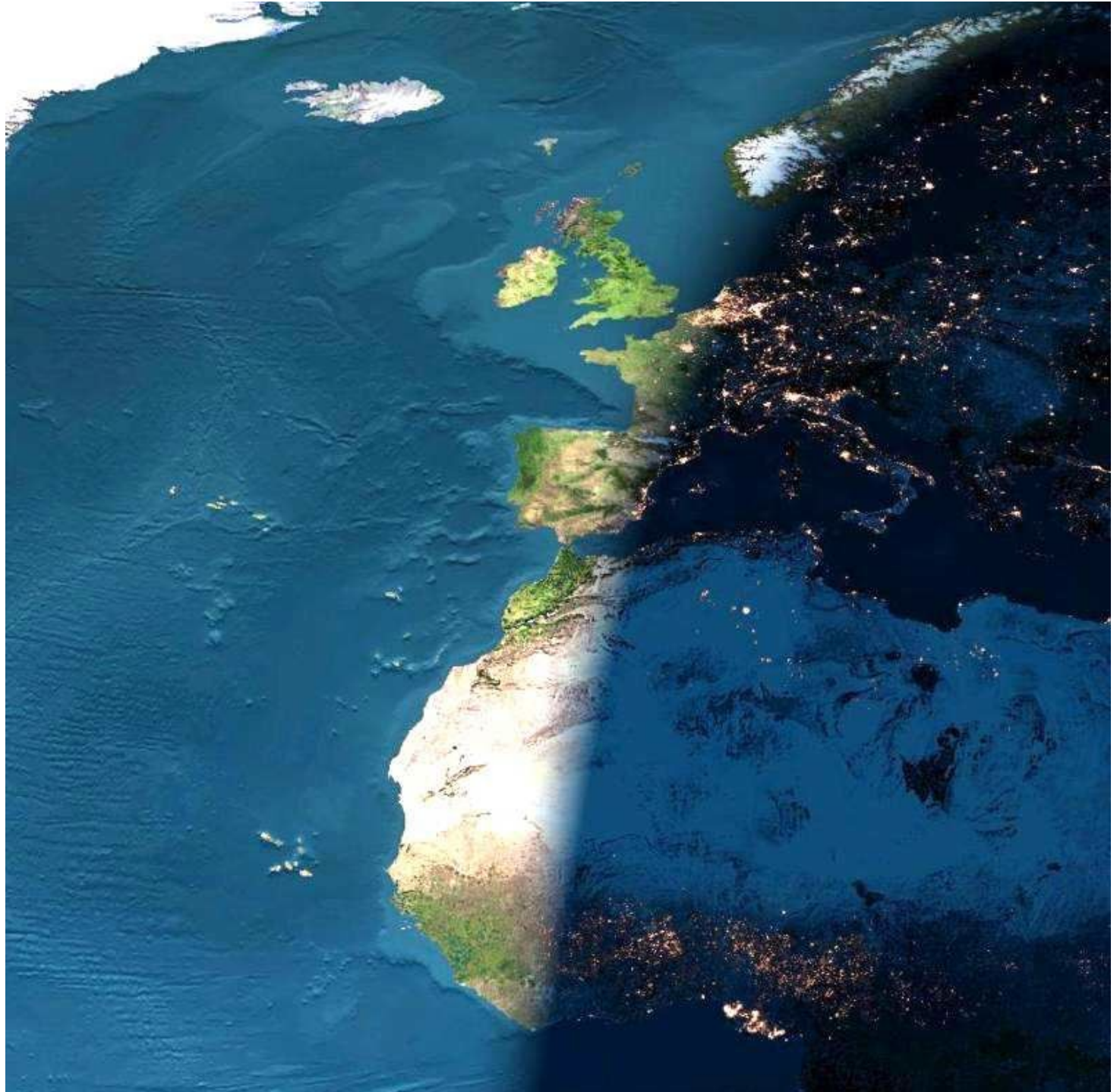
Major OEM Customers



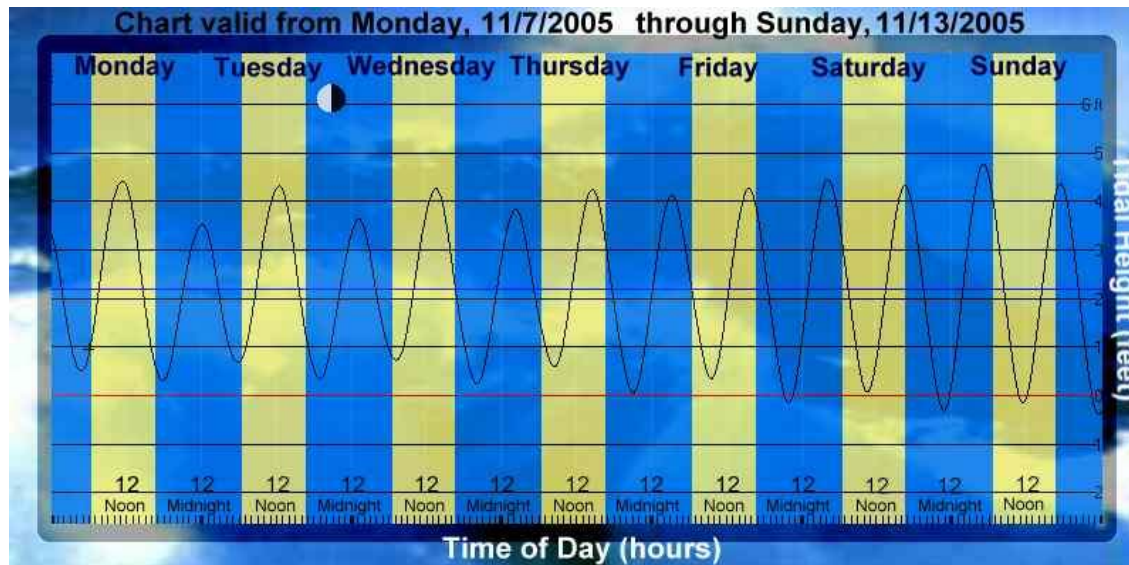
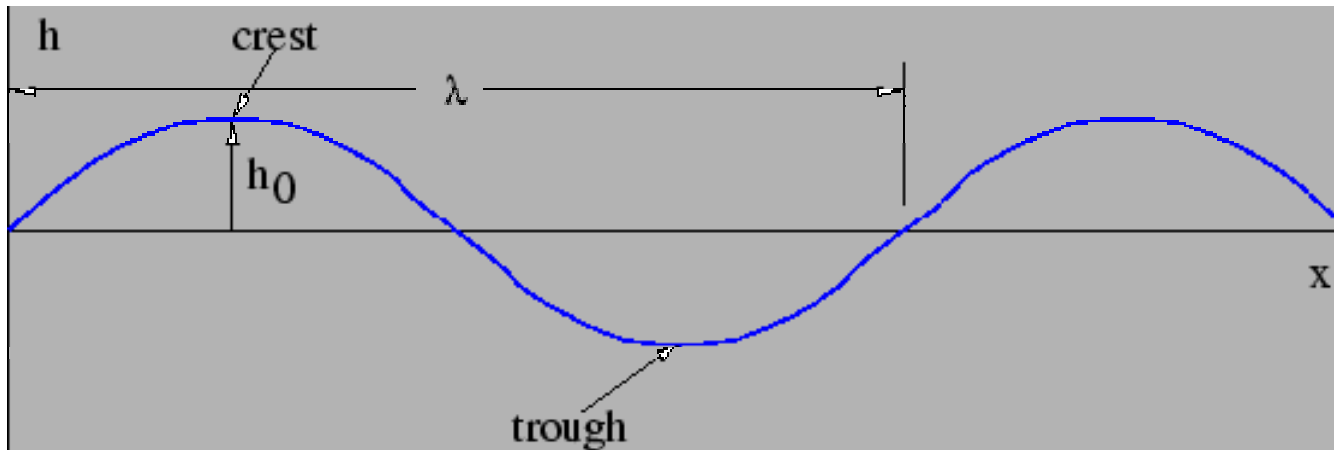


Product Management Communication Enhancement

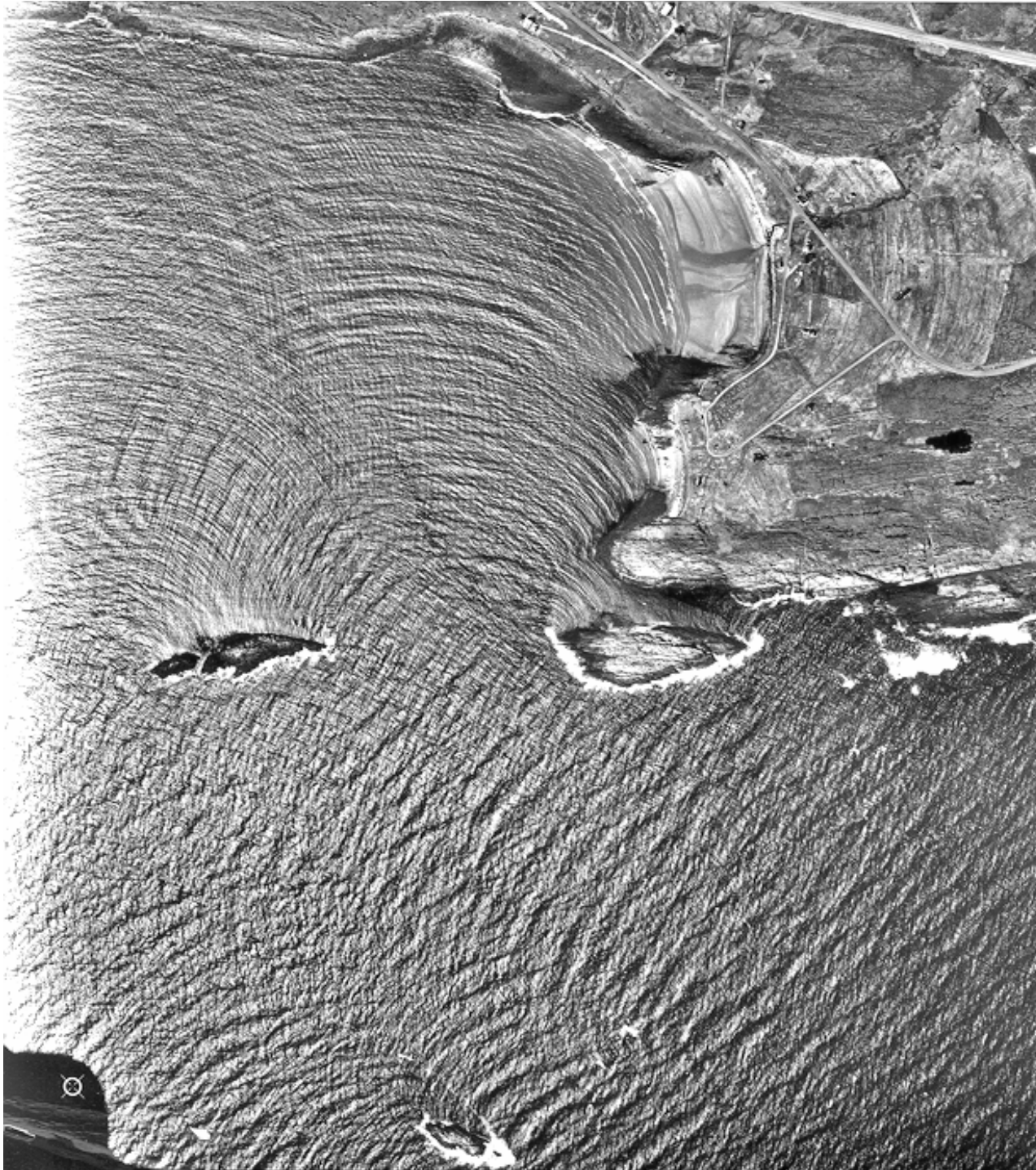
Some
cycles are
predictable.



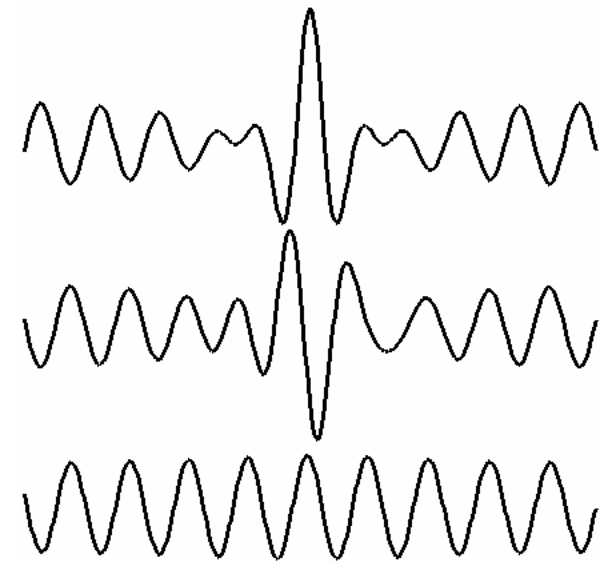
Some cycles are simple



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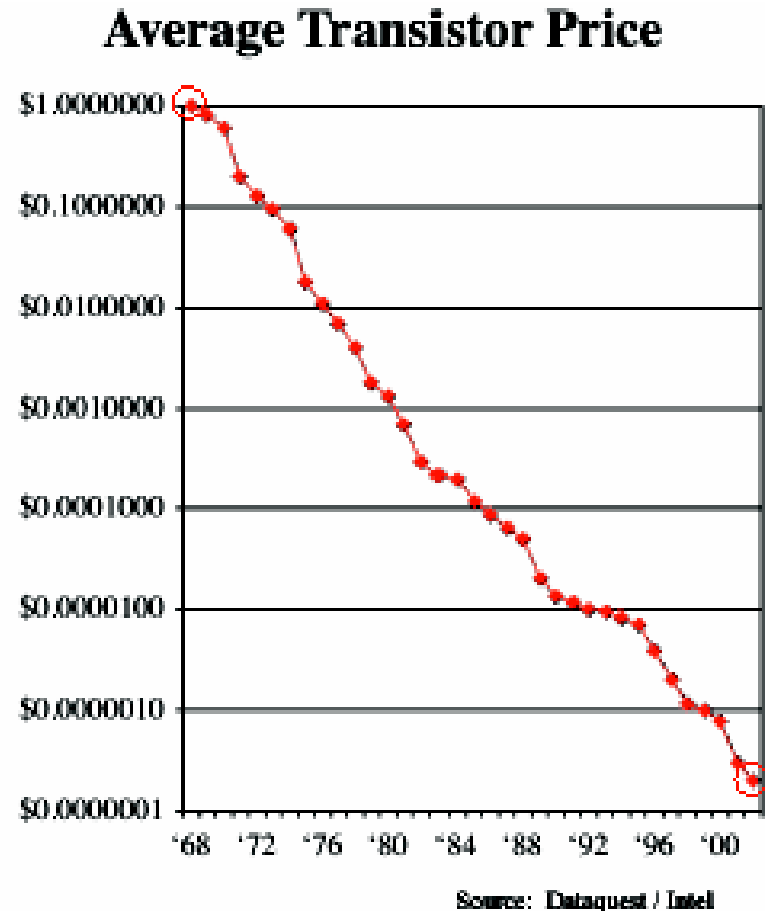
Combinations
of cycles are
more
complex:



There are technology cycles

Moore's Law

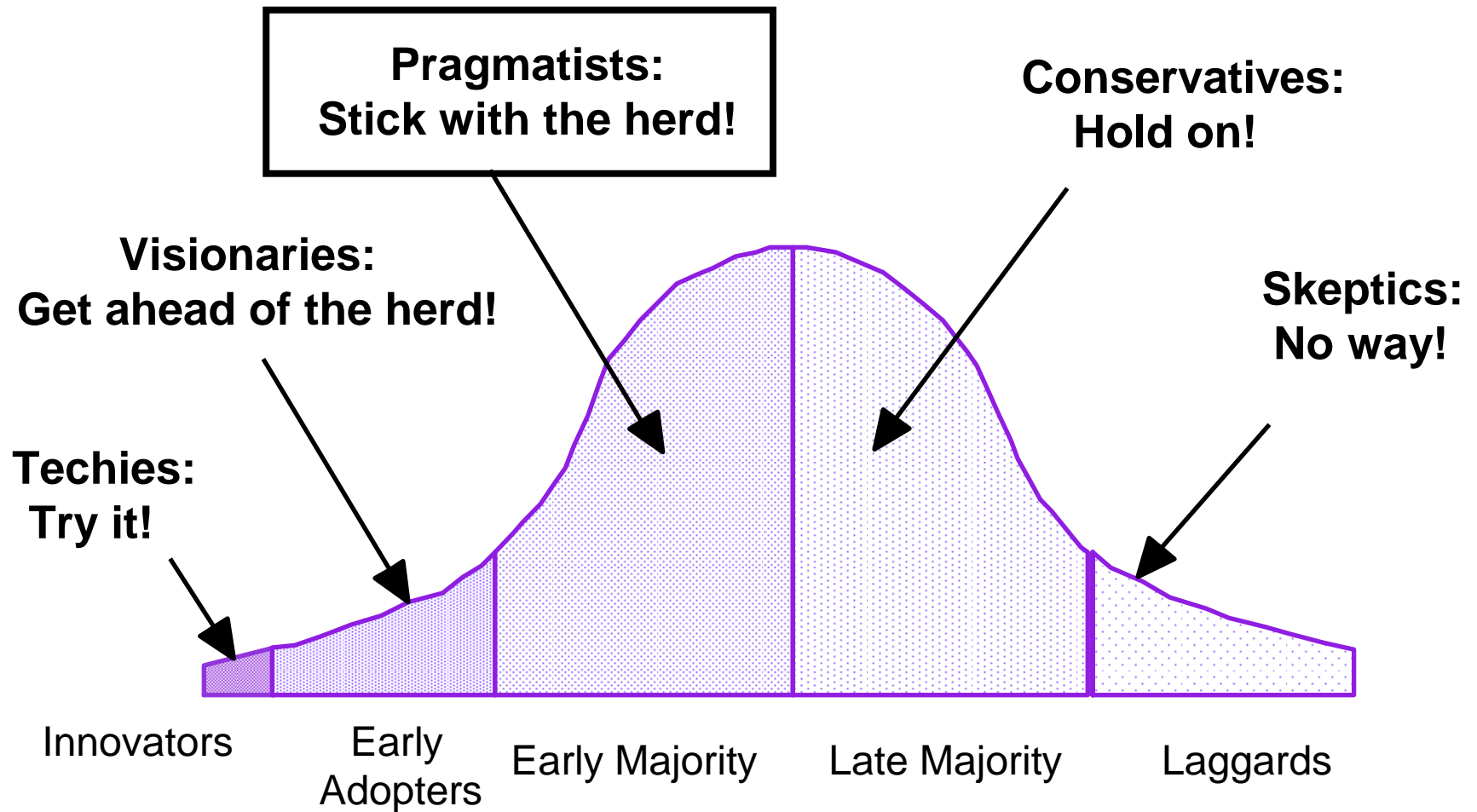
- **Observation:**
 - Exponential growth in the number of transistors per IC
- **Prediction:**
 - This trend will continue
- **Reality:**
 - Constant Cost Reduction
- **Recent Comment:**
 - “No Exponential is Forever ... but We Can Delay ‘Forever’ ”



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Source: Ron Leckie, Infrastructure

There is a Technology Adoption Cycle



Pragmatists create the dynamics of high-tech market development

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Source: Geoffrey Moore, Crossing the Chasm

The Chasm



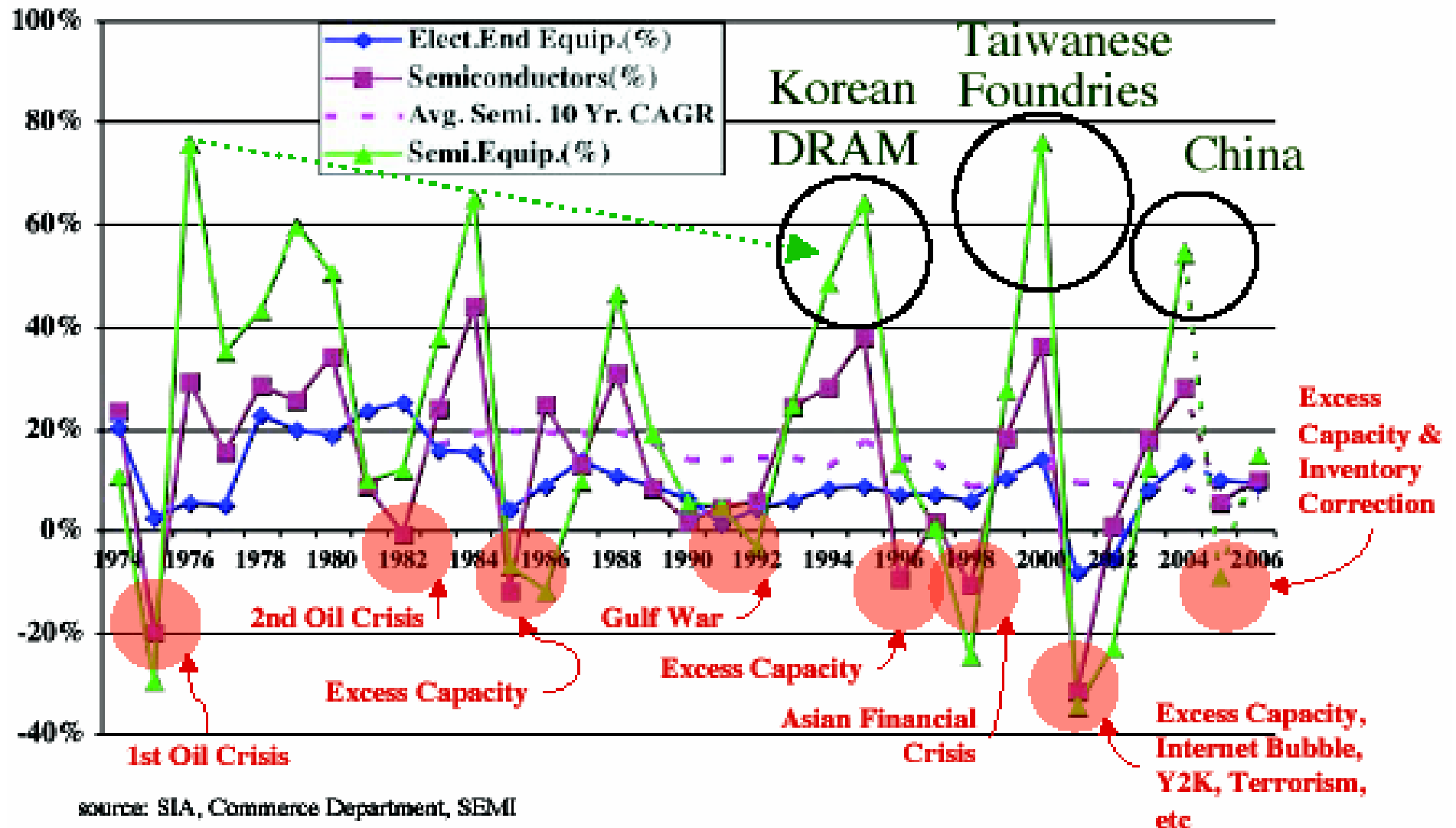
Innovation strategy changes at each stage

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Source: Geoffrey Moore, Crossing the Chasm

There are Business Cycles

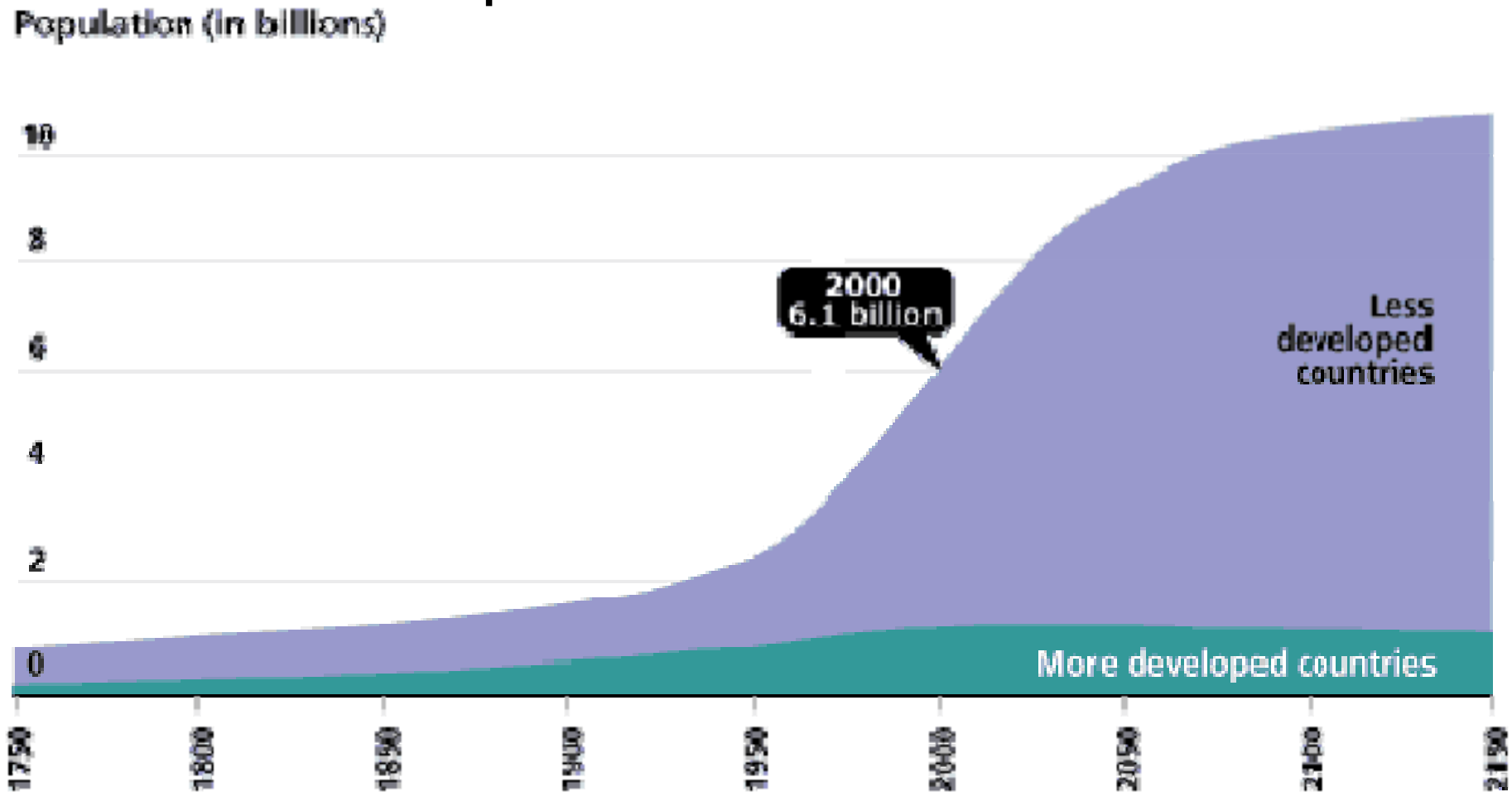
Semiconductor Cycles 1973 - 2005



Source: Infrastructure Advisors Copyright 2005

There are major trends

Population: 1750 - 2150



Source: United Nations, *World Population Prospects, The 1998 Revision*;

And there are Rogue Waves



Rare photo of
a Rogue Wave

On an oil
freighter off
the coast of
Durban,
South Africa

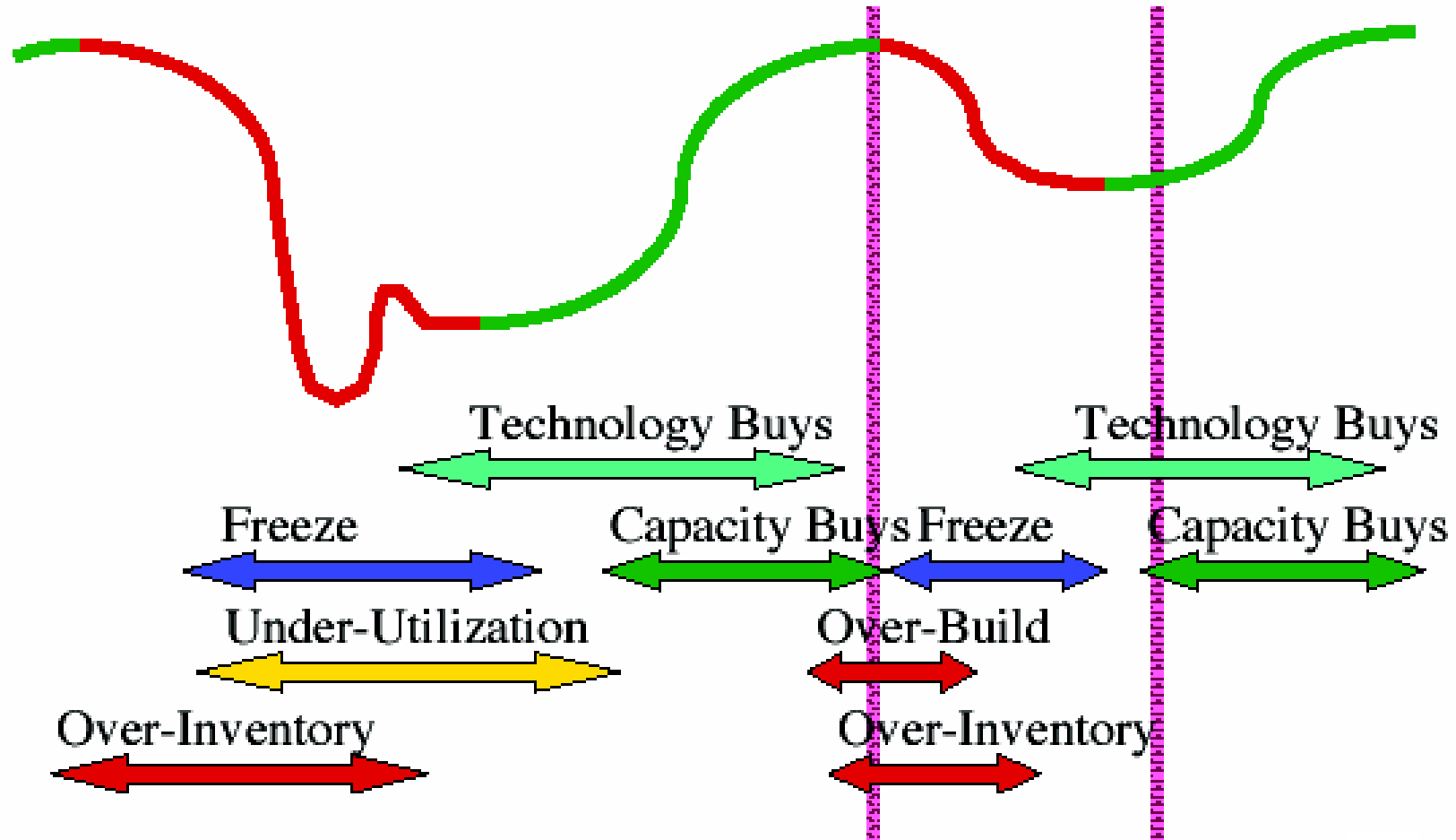
This wave is
about 35 feet
high

Guidelines for Product Managers

1. Understand the cycles affecting your industry
2. Understand the major trends affecting your industry
3. Choose the Best Products and Take Pets to the Pound
4. Create Alignment in the organization
5. Spend the time to forecast well
6. Diversify into counter-cyclical industries
7. Unseat an incumbent
8. Manage mergers & acquisitions effectively
9. Design simple processes that survive turmoil
10. Be proactive with headcount management
11. Outsource intelligently to respond to ups & downs

1. Understand the cycles and your customers' needs

Semiconductor Industry Cycles



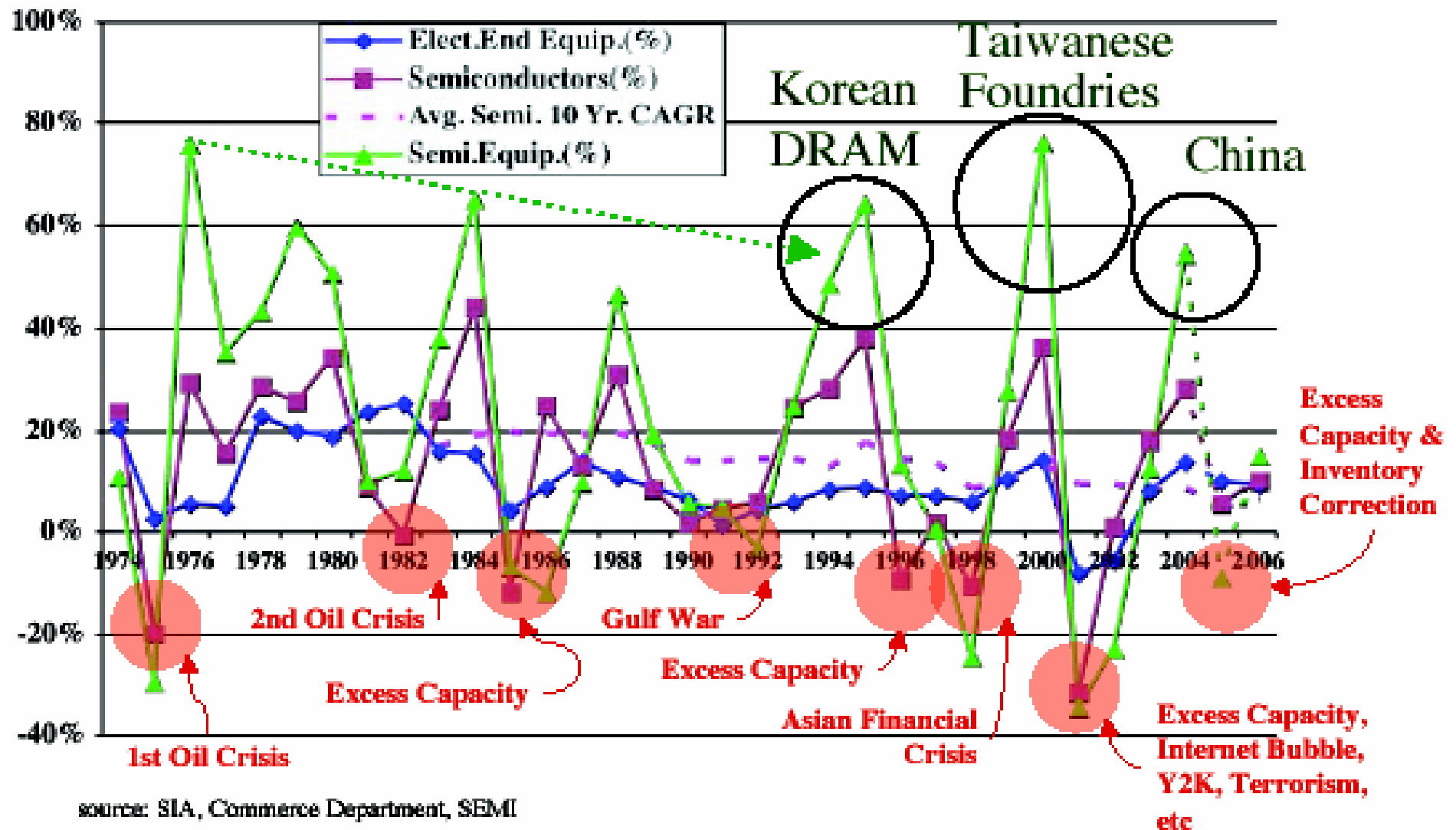
INFRASTRUCTURE Advisors - Copyright 2005

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Observations of Semiconductor Industry Cycles

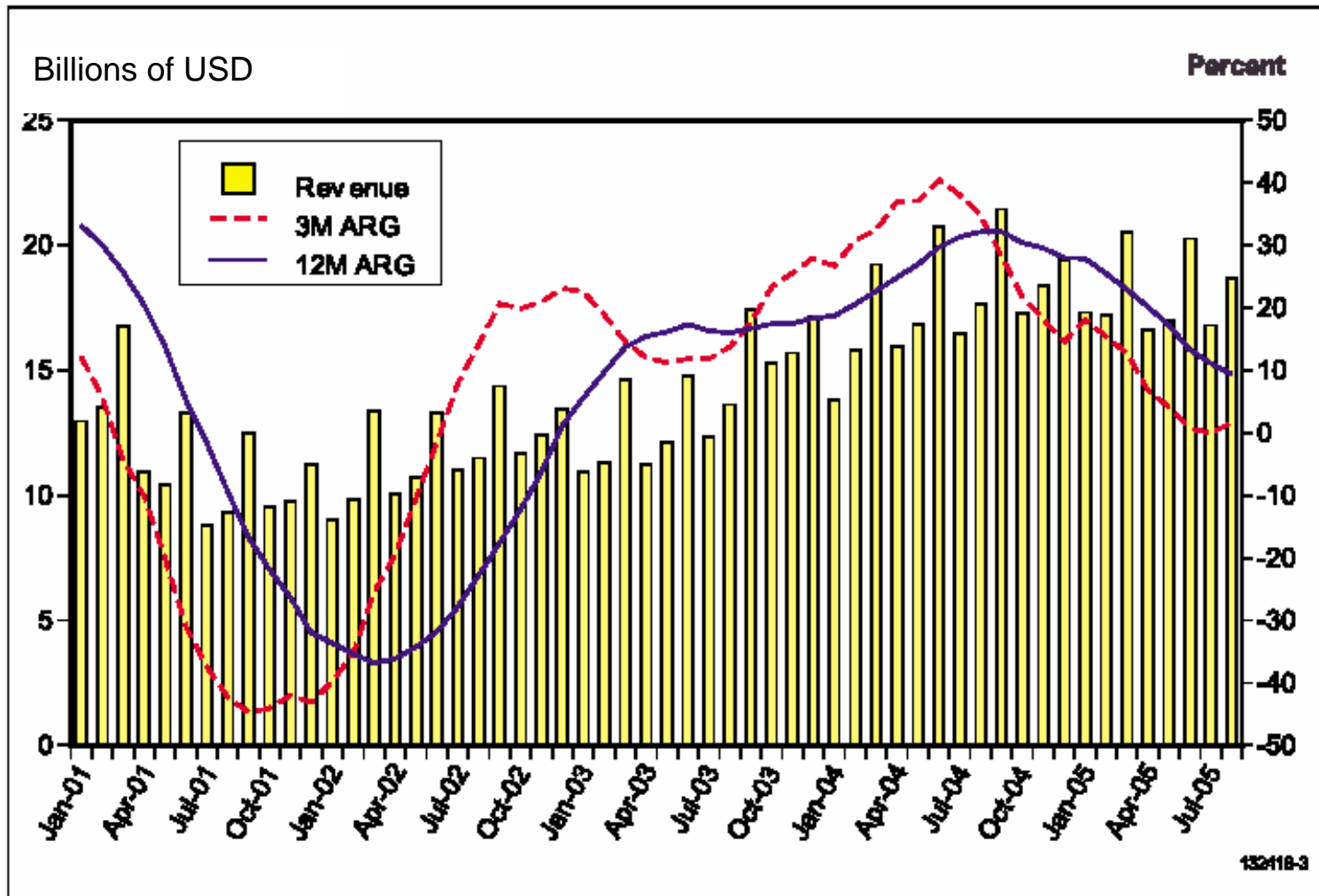
- The Chip Industry cycles overshoot Electronic End Equipment Cycles
- Chip Industry cyclicalities drives greater cyclicalities in Semiconductor Equipment
- The Semiconductor Equipment Industry gets whipped by the Changes in the Chip Industry
- “Rogue Waves” randomly occur
 - 1973 Gas Crisis
 - 1982 Gas Crisis
 - First Gulf War (1991)
 - Asian Financial Crisis of 1997
 - Y2K
 - Internet Bubble
 - September 11, 2001

Semiconductor Cycles 1973 - 2005



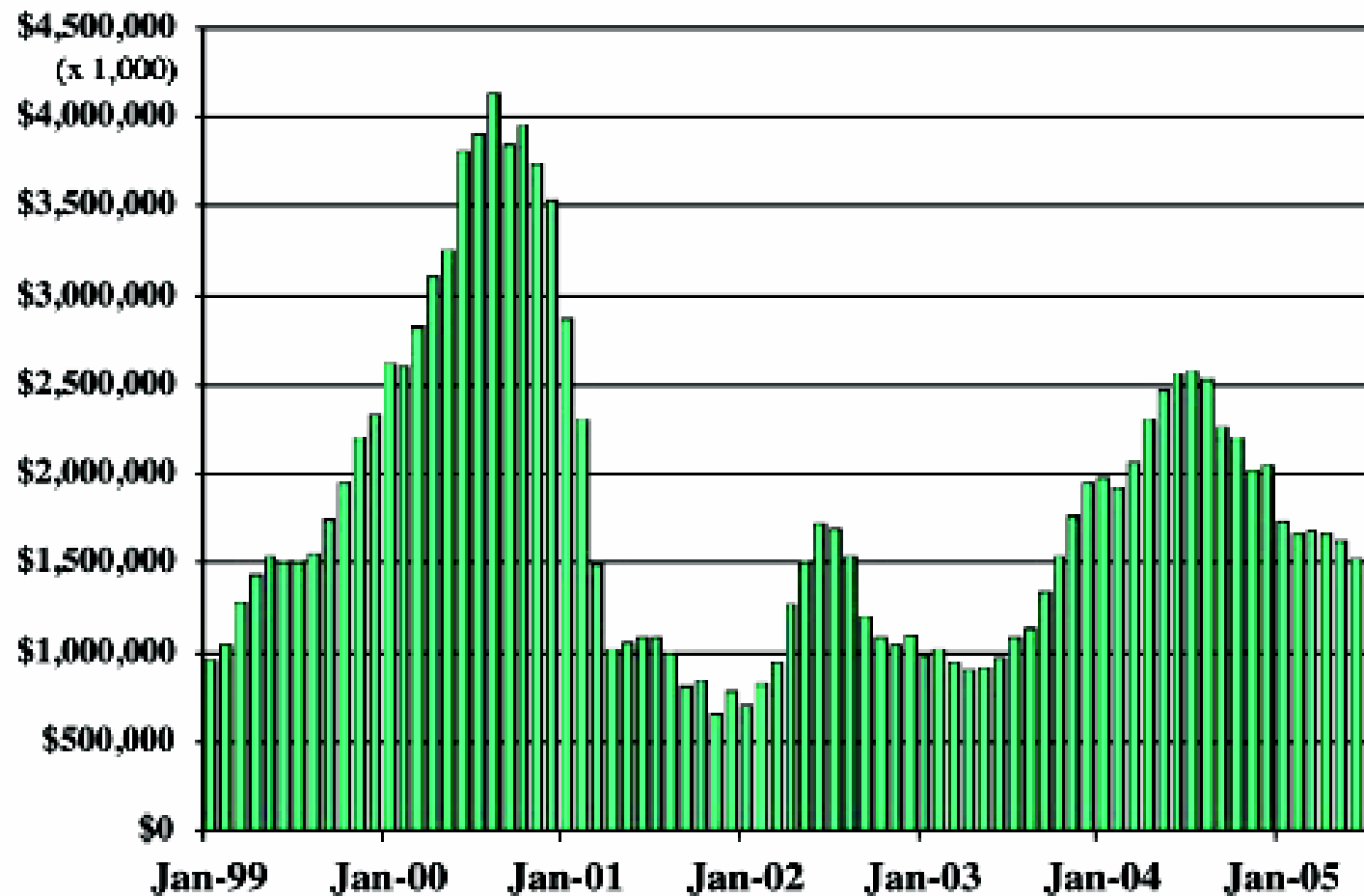
Global Semiconductor Revenue

Jan-01 to Jul-05



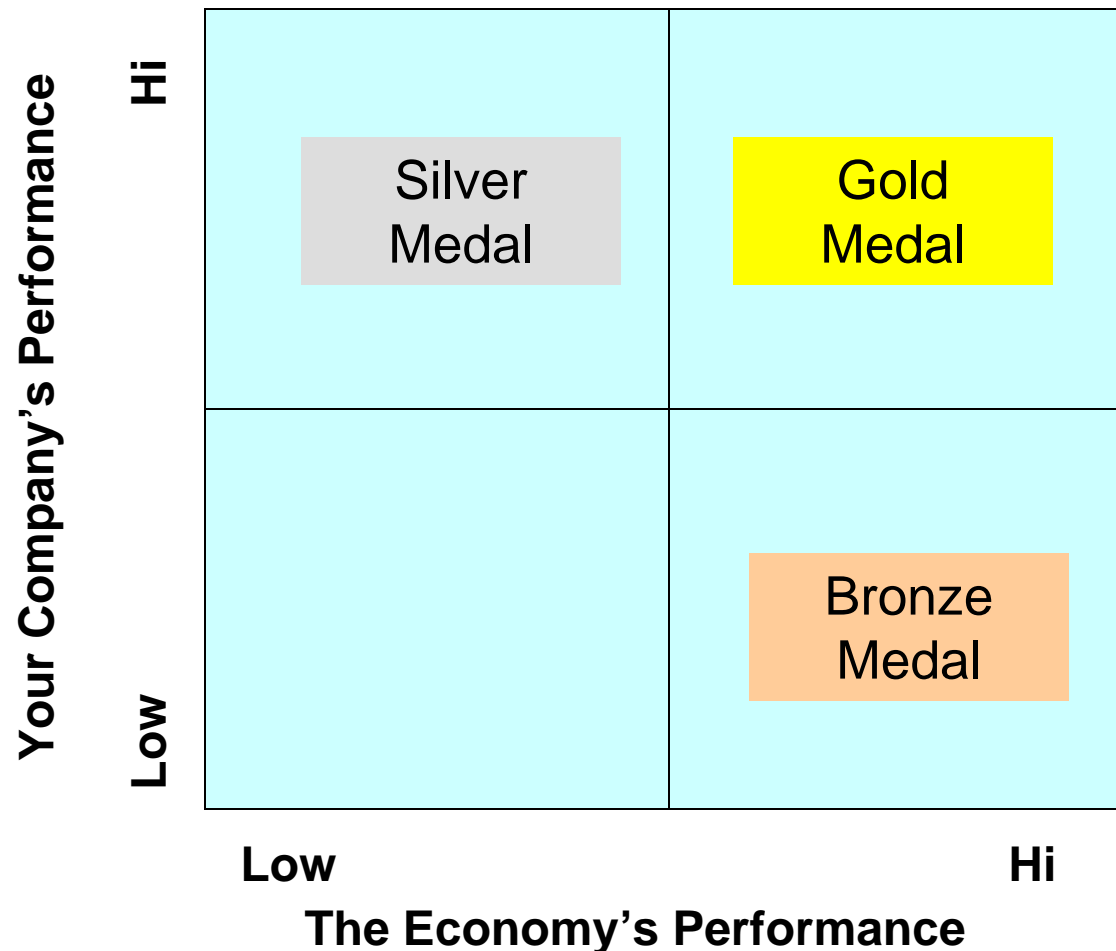
Source: WSTS (October 2005)

Wafer Fab Equipment Orders



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Economy vs. Performance Model



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Source: Paraphrased from Andy Grove, Intel

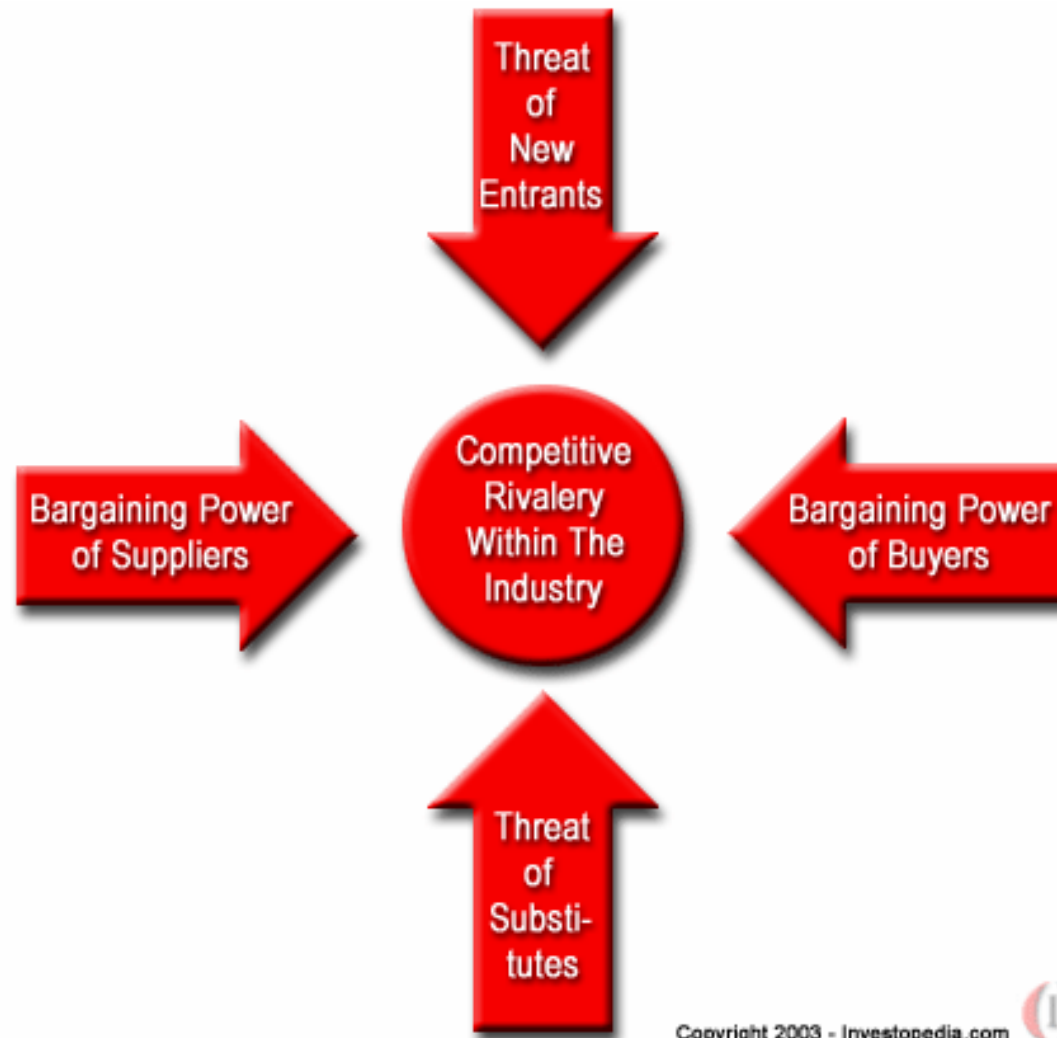
2. Understand the major trends affecting your industry

Major Trends affecting Telecom

"This may be the most exciting period in the history of the telecommunications industry." - Paul Johnson, Analyst

- Convergence
- The fiber optic revolution
- From analog to digital
- Bundling of services
- The importance of data
- The broadband opportunity
- Domestic regulatory changes
- International regulatory changes

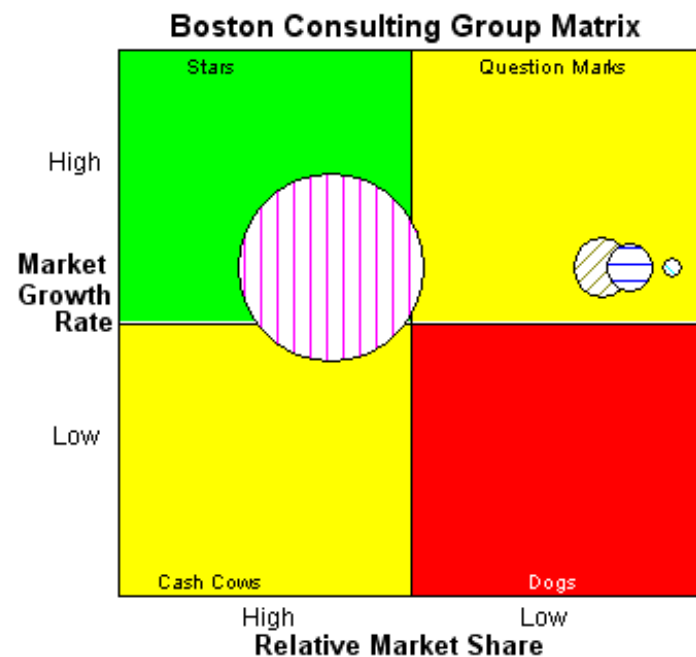
The Five Competitive Forces Model



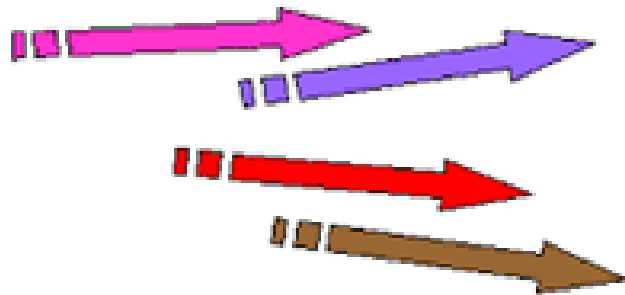
Source: Michael E. Porter's 1980 book "Competitive Strategy: Techniques for Analyzing Industries and Competitors"

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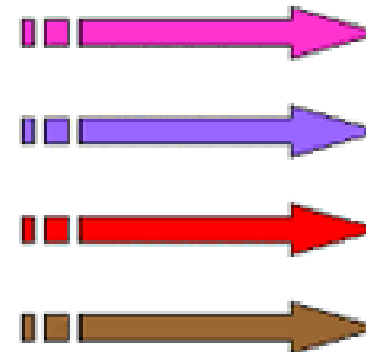
3. Choose the Best Products & Take Pets to the Pound



4. Create alignment in your organization



In the non-aligned organization, performance and development plans are "ad hoc" and not tied to business strategy.



In the well-aligned organization, performance and development plans are coordinated, helping to achieve strategic business results.

5. Spend the time
to forecast well.

Useful forecasting tools



Tasseography
The Art of
Reading Tea Leaves



- Signs point to yes.
- Yes.
- Reply hazy, try again.
- Without a doubt.
- My sources say no.
- As I see it, yes.
- You may rely on it.
- Concentrate and ask again.
- Outlook not so good.
- It is decidedly so.
- Better not tell you now. .



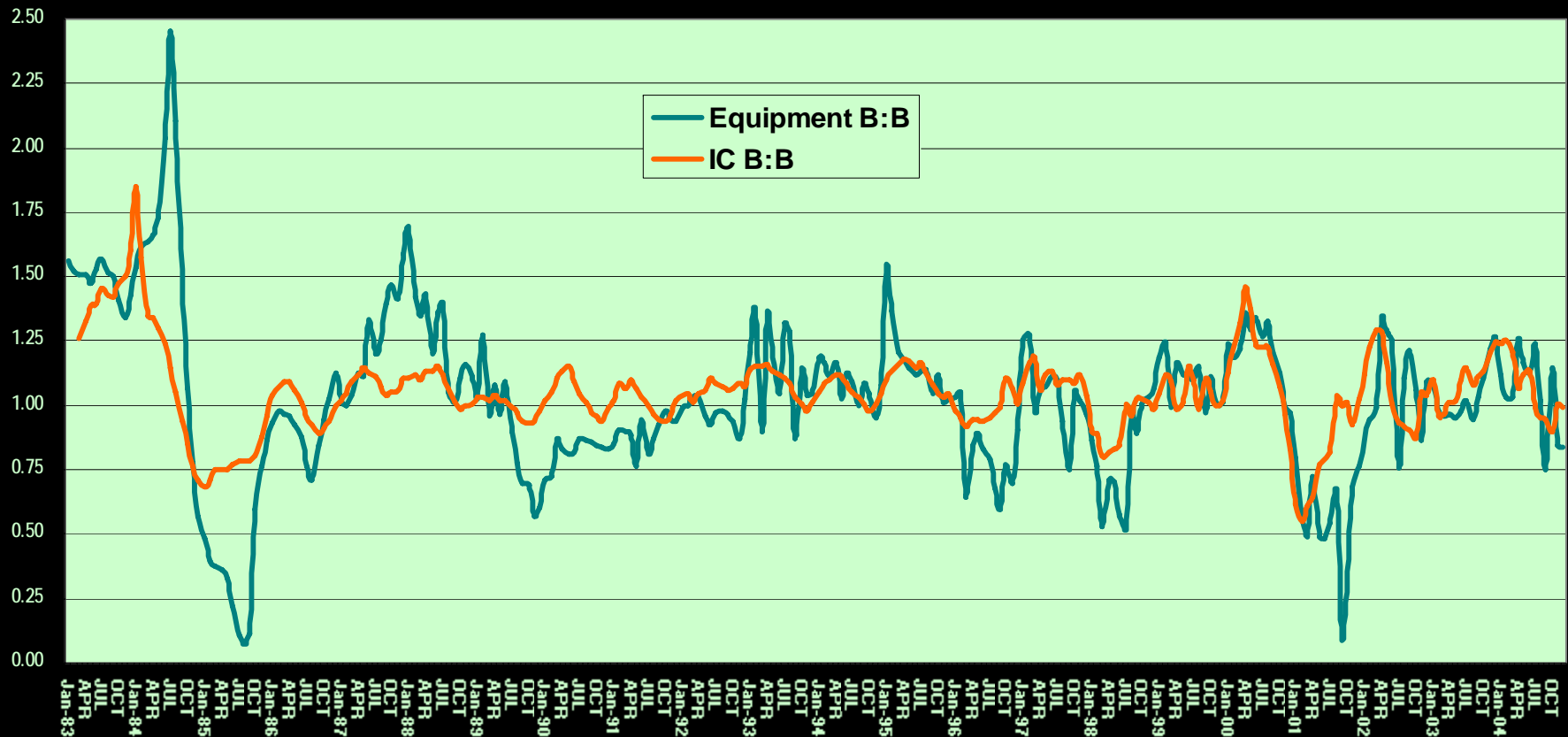
There are
two types of
Forecasts

Spend time to forecast: Find & Watch Leading Indicators

VLSI RESEARCH INC

Where the Chip Making Industry Clicks to Find its Weather

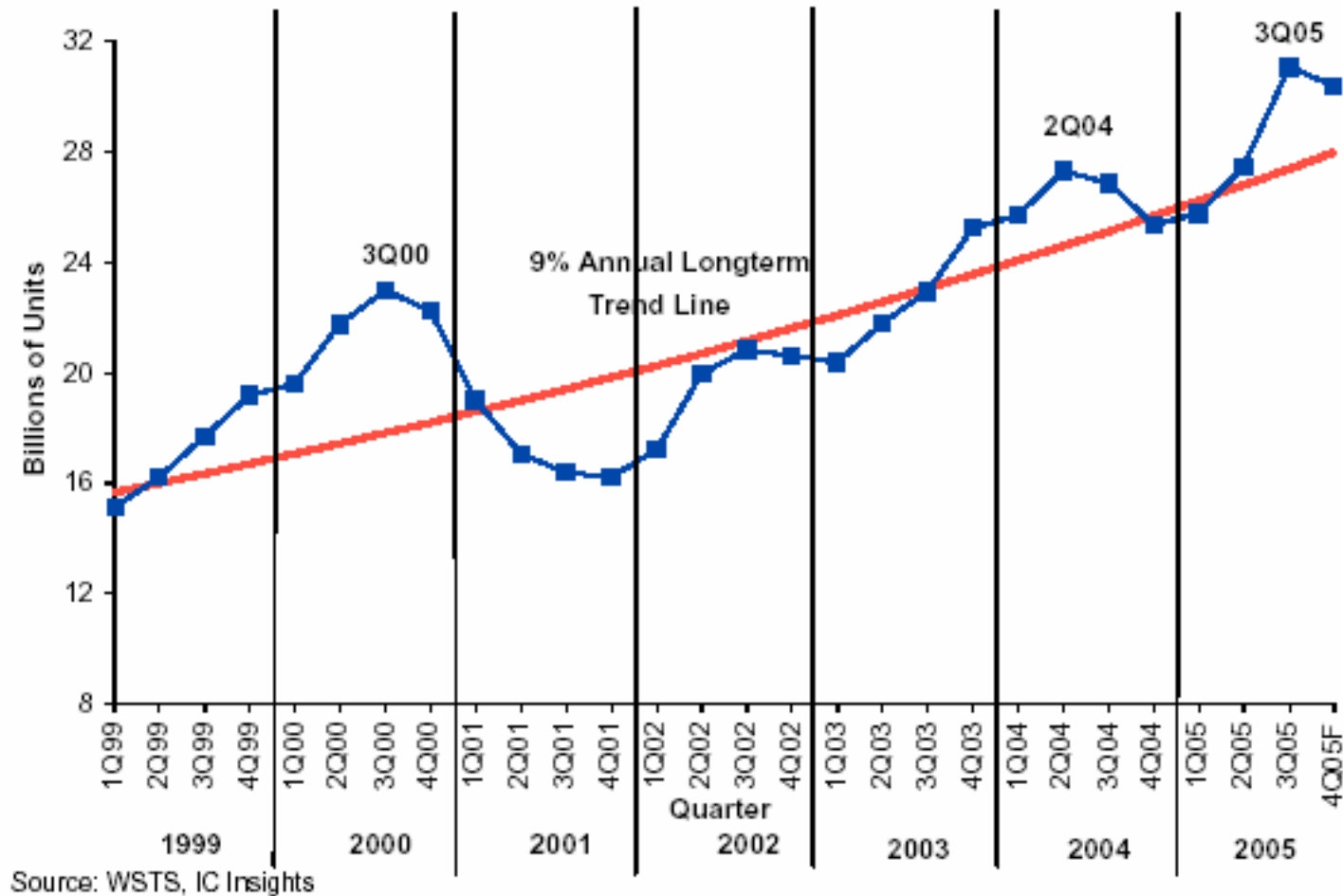
Equipment and IC Book to Bill



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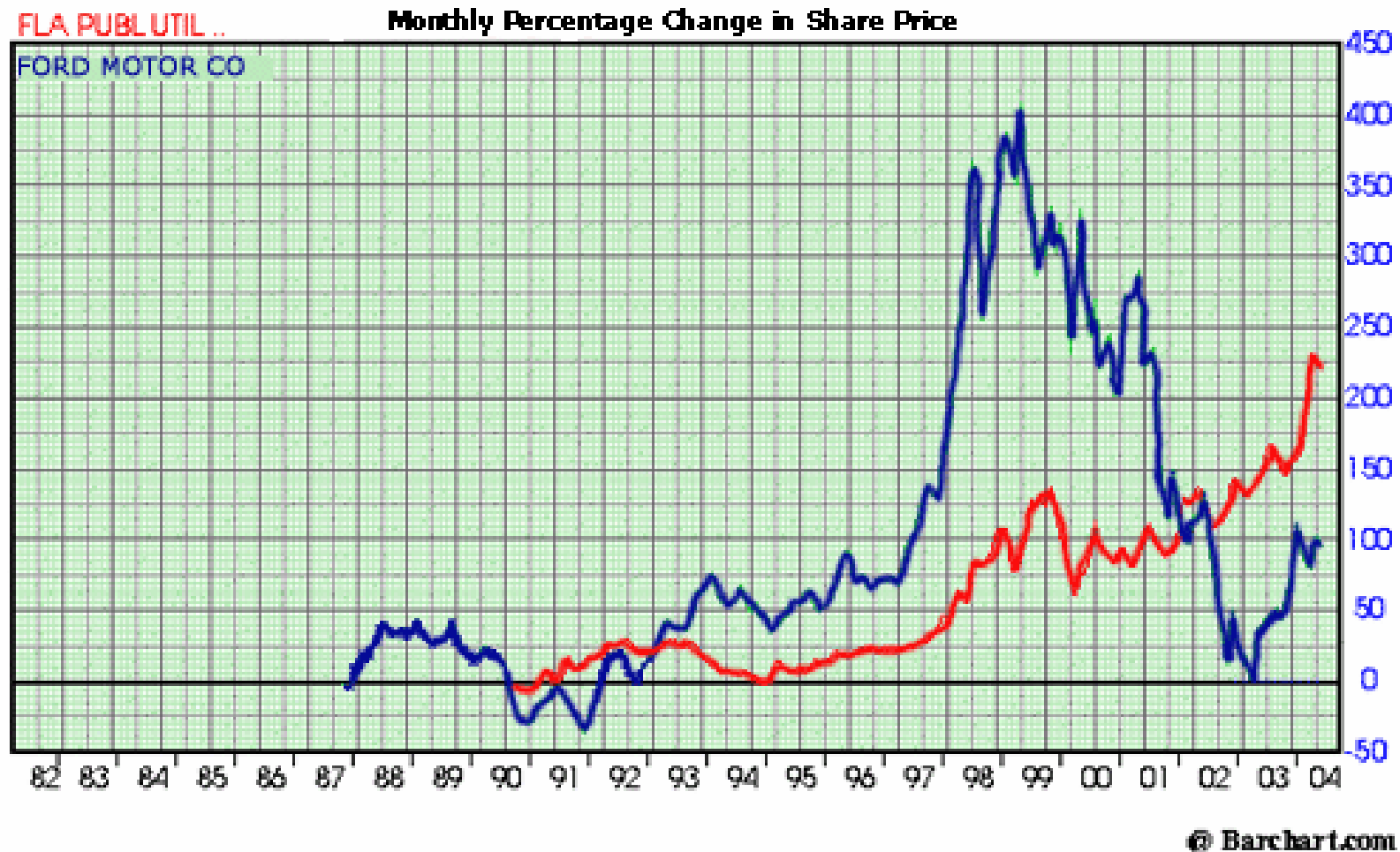
IC Unit Shipment Trend

1999-2005 Quarterly IC Unit Volume Shipment Trend



6.Diversify into counter-cyclical industries

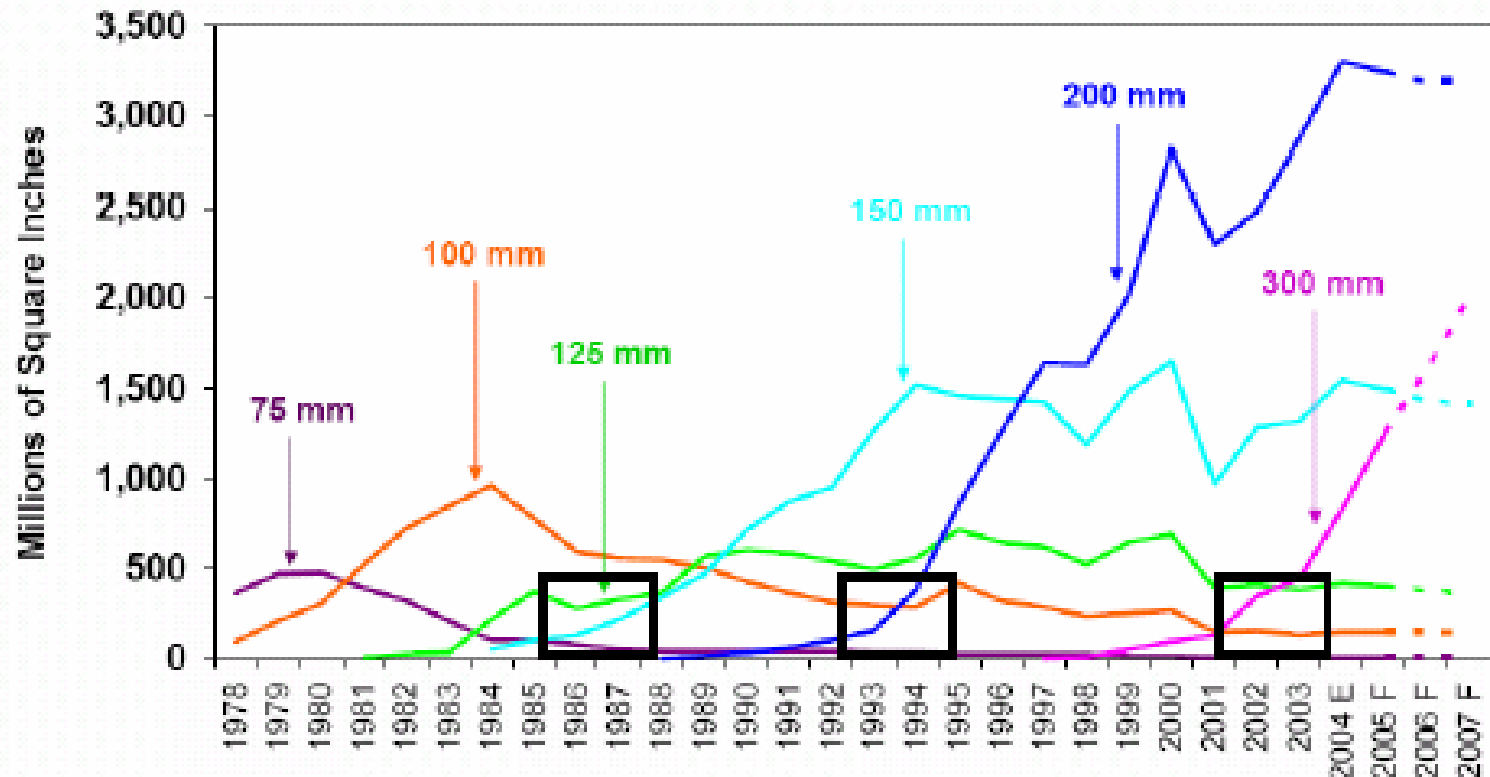
Performance of a highly cyclical and a non-cyclical company



7. Unseat an incumbent

Look for windows of opportunity to unseat an incumbent

Figure 3. Historical wafer size transitions



Includes polished, epi and non polished wafers. Excludes reclaim and SOI.

□ Wafer size transitions

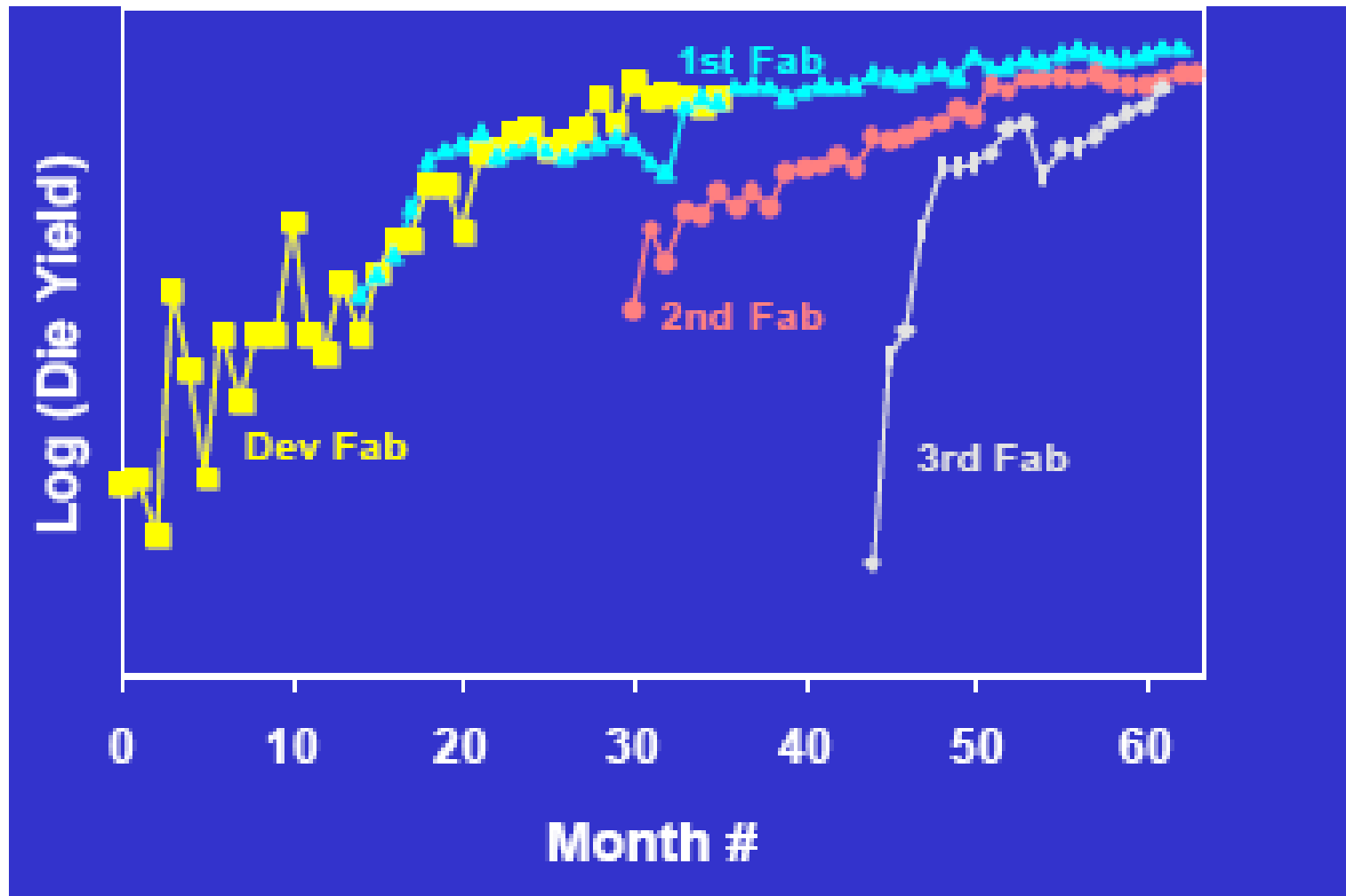
Source: Rose Associates 1978 to 1995; SEMI SMG 1995 to 2003; SEMI SMG estimate for 2004; SEMI SMG consensus forecast for 2005 to 2007

8. Manage mergers & acquisitions effectively

9. Design simple processes that survive turmoil

The Copy Exactly! Process

Helps Fabs Climb the Yield Curve Faster



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Source: Intel website

10. Be proactive with headcount management

11. Outsource intelligently
to respond quickly
to ups and downs

Outsource Intelligently:

- Freeze the product prior to transfer and create complete documentation
 - Don't rely on tribal knowledge
- Documentation for ESL
 - English as Second Language
- Configure the product appropriately
 - Customer Requirements evolve
 - Configure for Cost Reduction
 - Regulatory Requirements

Summary & Conclusion

1. Understand the cycles affecting your industry
2. Understand the major trends affecting your industry
3. Choose the Best Products and Take Pets to the Pound
4. Create Alignment in the organization
5. Spend the time to forecast well
6. Diversify into counter-cyclical industries
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Thank you