
RESPOND TO FORECAST CHANGE
Forecasting/Demand Planning
CAPACITY CONSTRAINT
Supply Chain Management
ENGINEERING CHANGE
PRICE MANAGEMENT
LEAN MANUFACTURING
Capable to Promise
Clear to Build
Respond To Order Change
S&OP
MPS
New Product Introduction
Supply Chain
Global Supply/Demand Balancing
SUPPLY CHAIN SIMULATION
LINE OF BALANCE
SALES AND OPERATIONS PLANNING
Scorecarding
KINAXIS™

Insights from highly outsourced supply chains

Trevor Miles

Director, Thought Leadership

tmiles@kinaxis.com

Comparison of Pharma Supply Chains

BioPharmaceutical	High-Tech/Electronics
Reverse V-shaped BOM	Regular A-shaped BOM
Nascent outsourcing	Pervasive outsourcing
Highly regulated	Relatively little regulation
Product expiry	Price ‘expiry’

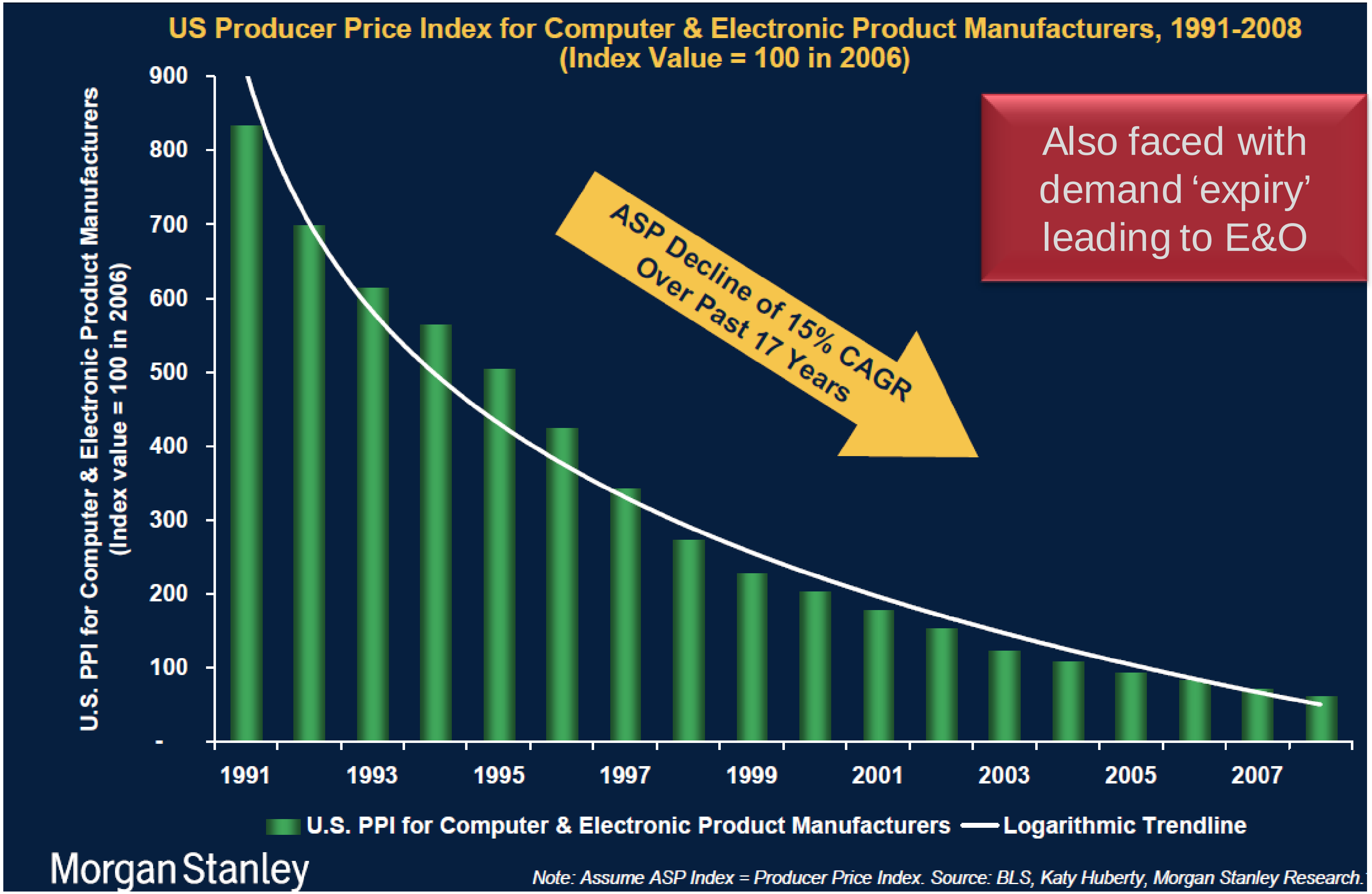
High-tech supply chain’s recognized as best-in-class

Why compare with High-Tech/Electronics?

SUPPLY CHAIN TOP 25 2010	SUPPLY CHAIN TOP 25 2009	SUPPLY CHAIN TOP 25 2008
1. Apple	1. Apple	1. Apple
2. Procter & Gamble	2. Dell	2. Nokia
3. Cisco Systems	3. Procter & Gamble	3. Dell
4. Wal-Mart Stores	4. IBM	4. Procter & Gamble
5. Dell	5. Cisco Systems	5. IBM
6. PepsiCo	6. Nokia	6. Wal-Mart Stores
7. Samsung Electronics	7. Wal-Mart Stores	7. Toyota Motor
8. IBM	8. Samsung Electronics	8. Cisco Systems
9. Research In Motion	9. PepsiCo	9. Samsung Electronics
10. Amazon.com	10. Toyota Motor	10. Anheuser-Busch
11. McDonald's	11. Schlumberger	11. PepsiCo
12. Microsoft	12. Johnson & Johnson	12. Tesco
13. The Coca-Cola Company	13. The Coca-Cola Company	13. The Coca-Cola Company
14. Johnson & Johnson	14. Nike	14. Best Buy
15. Hewlett-Packard	15. Tesco	15. Nike
16. Nike	16. Walt Disney	16. Sony Ericsson
17. Colgate-Palmolive	17. Hewlett-Packard	17. Walt Disney
18. Intel	18. Texas Instruments	18. Hewlett-Packard
19. Nokia	19. Lockheed Martin	19. Johnson & Johnson
20. Tesco	20. Colgate-Palmolive	20. Schlumberger
21. Unilever	21. Best Buy	21. Texas Instruments
22. Lockheed Martin	22. Unilever	22. Lockheed Martin
23. Inditex	23. Publix Super Markets	23. Johnson Controls
24. Best Buy	24. Sony Ericsson	24. Royal Ahold
25. Schlumberger	25. Intel	25. Publix Super Markets

- Highly outsourced
- Global supply chains
- Very volatile demand
- Explosion of products
- Consistently outperforms other industries

Price 'Expiry'- ASPs Decline 15% per Year



Price 'expiry' experienced throughout SC

Component	iPhone 2.5G (6/07)	iPhone 3G (6/08)	% Change
8GB NAND Storage	$70	$23	-67%
LCD Display	34	20	-40
Baseband Chip [(1)]	11	15	33
Application Processor	19	14	-27
2 MP Camera Module	11	7	-36
SDRAM	11	5	-54
Wi-Fi Chipset	15	4	-74
Lithium-Ion Battery	12	4	-67
RF Transceiver	5	4	-10
Accelerometer	2	2	-11
Charger	2	2	-18
Bluetooth Chip	4	2	-47
Other	61	72	17
Total Bill-of-Material Costs	**$256**	**$173**	**-33%**

Morgan Stanley

Note: (1) Baseband chip cost increased 33% due to iPhone 3G's use of HSDPA (3G)-capable chip vs. original iPhone's EDGE (2.5G) baseband chip. Source: iSuppli.

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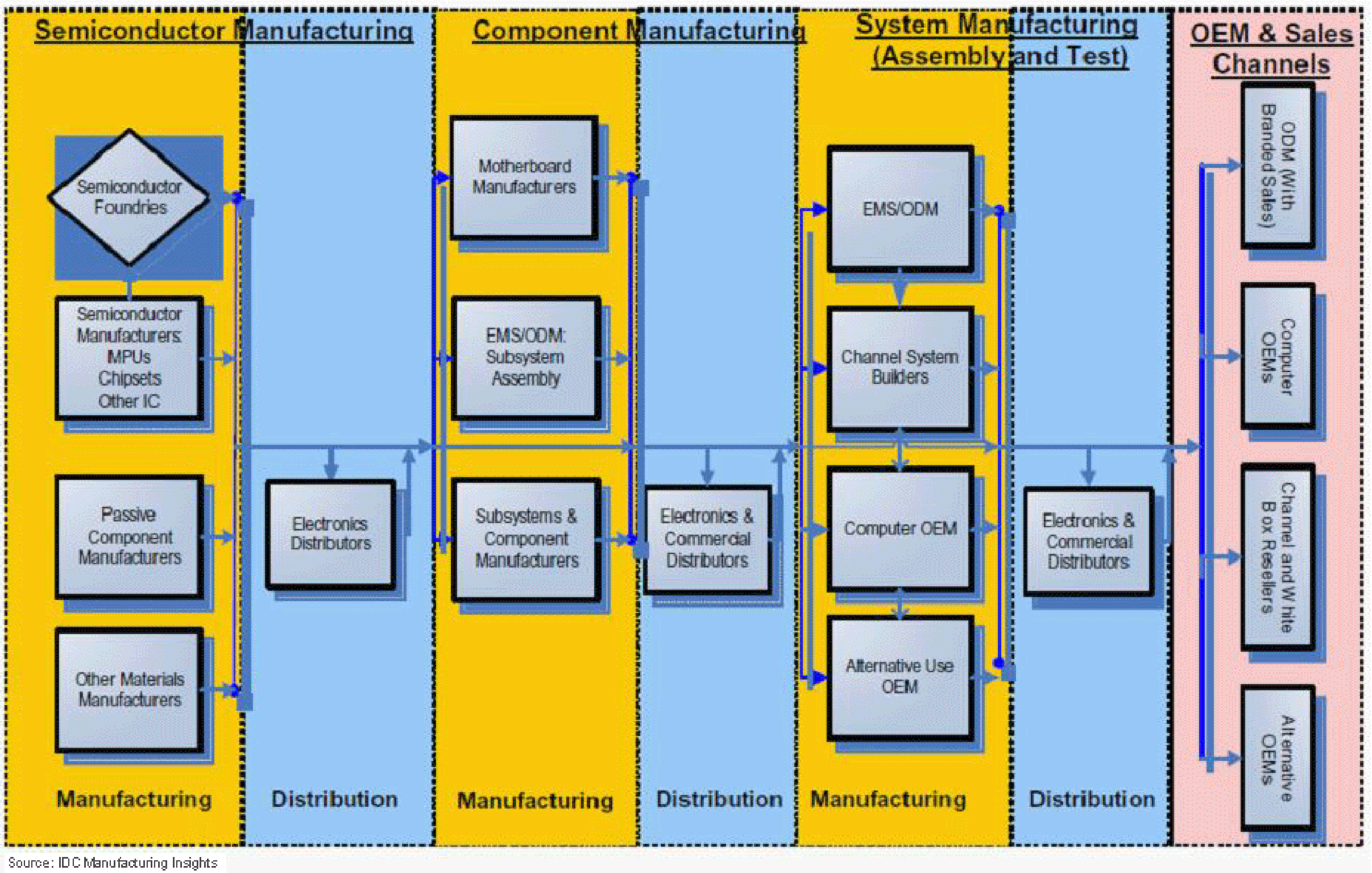
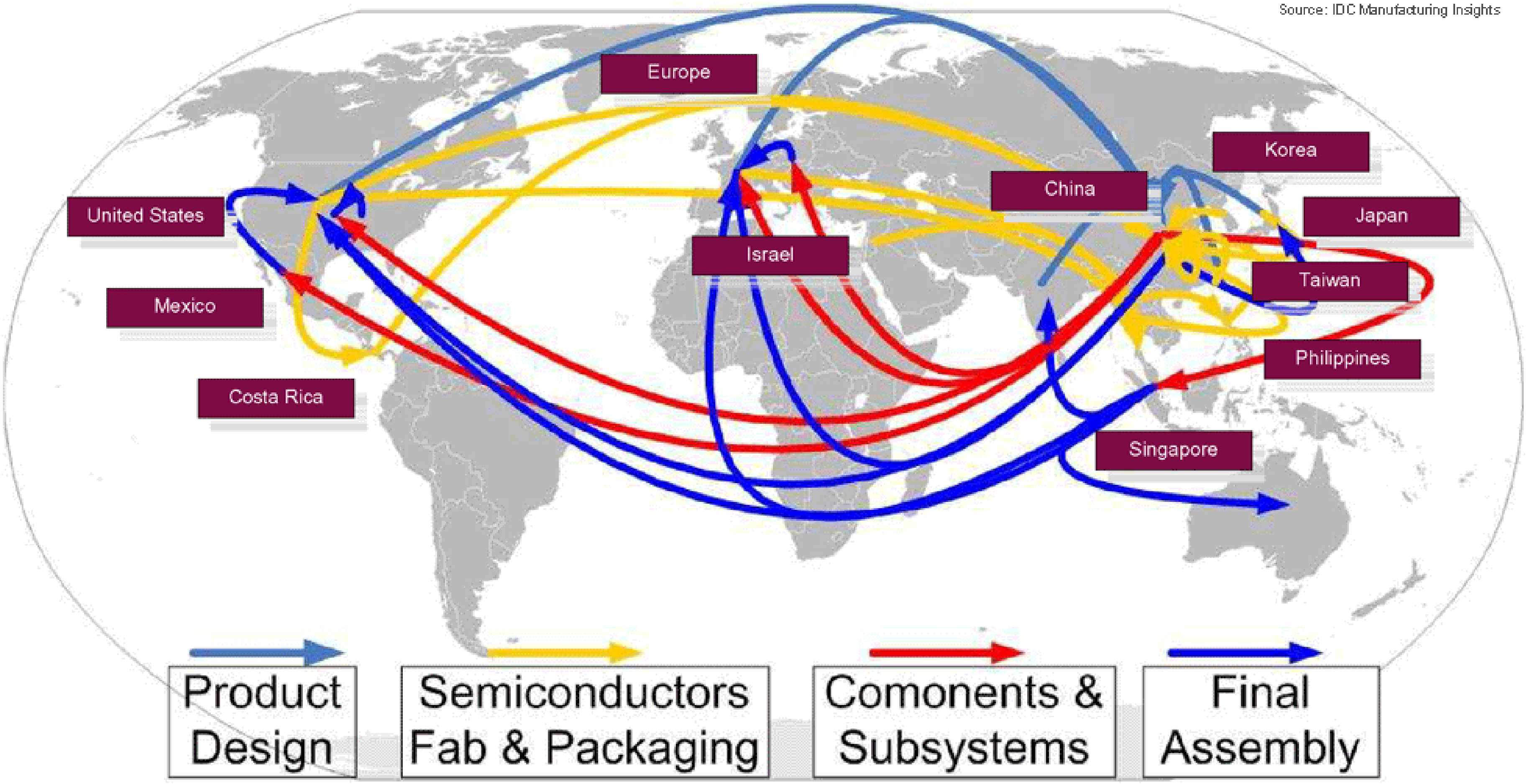
Highly Outsourced



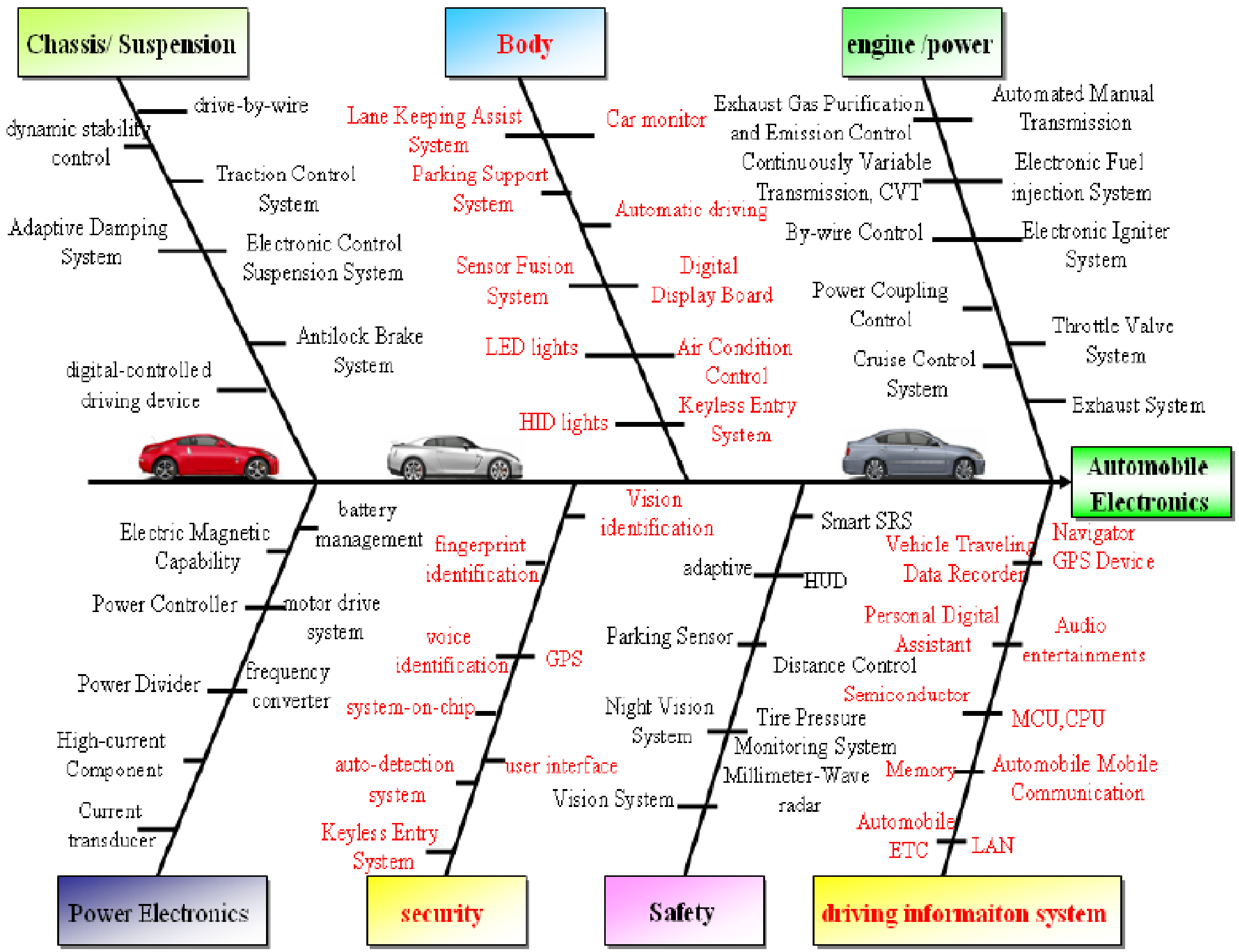
Courtesy VentureOutsource.com

Global Supply Chains



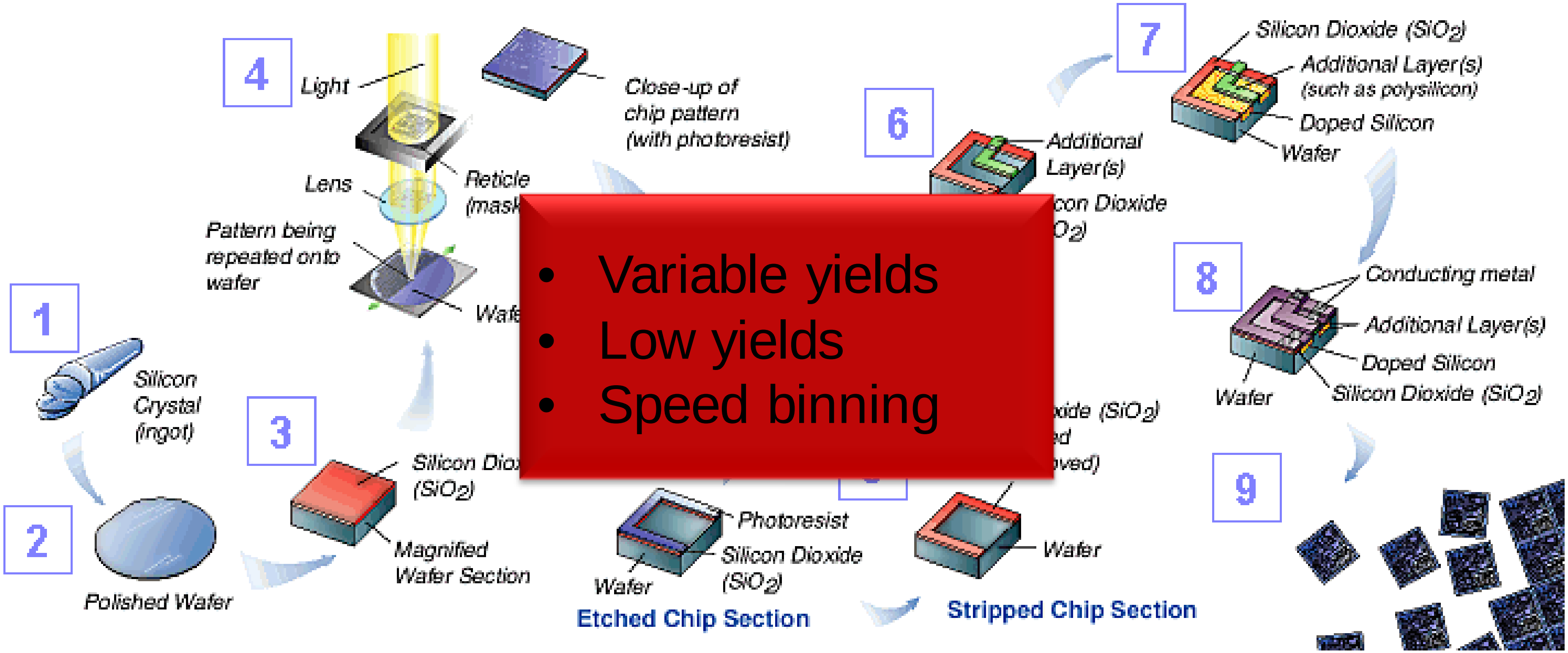
Courtesy VentureOutsource.com

Explosion of Products



Source: ITRI, organized for the present study, 2008/1

Very Complex Foundry Manufacturing Process

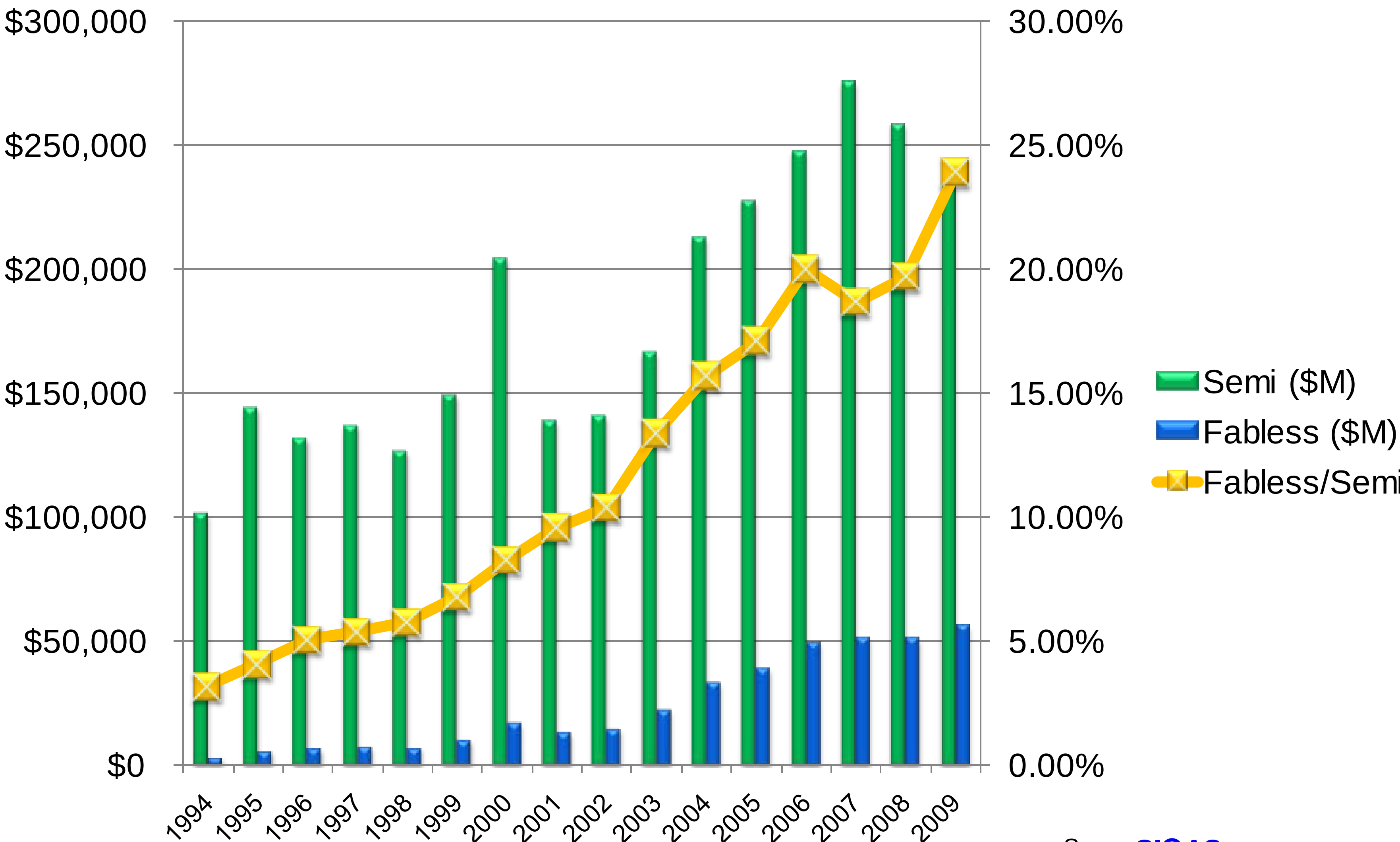


- Variable yields
- Low yields
- Speed binning

Source: http://www.sematech.org

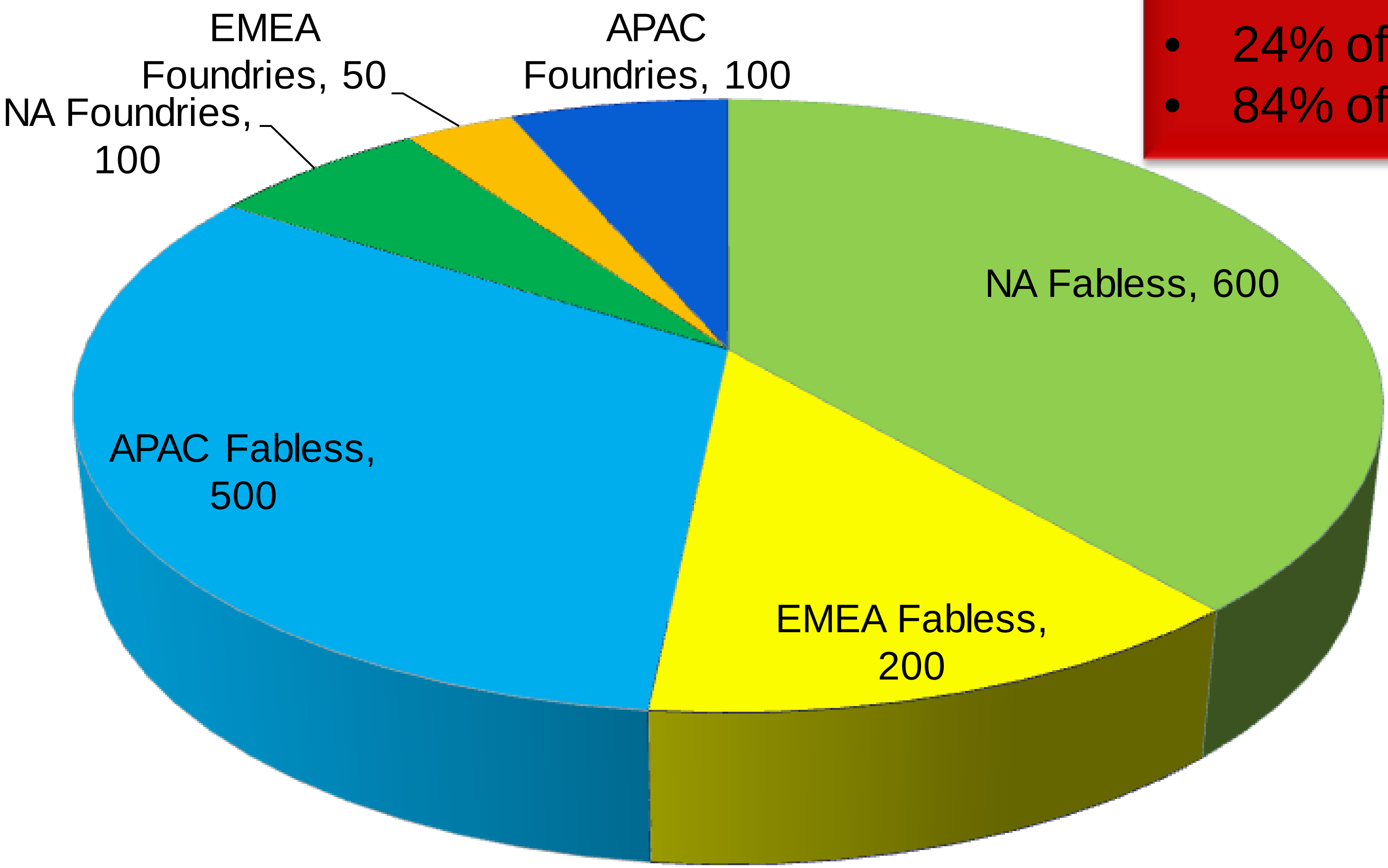
- Constantly changing technology – speed/power, size
- $3B-$4B investment
- 2-3 years from ‘first shovel’ to ‘first wafer’
- 6-18 week manufacturing lead time

Growth of Fabless Semiconductors



Source: SICAS

Foundry Concentration = Supply Chain Risk

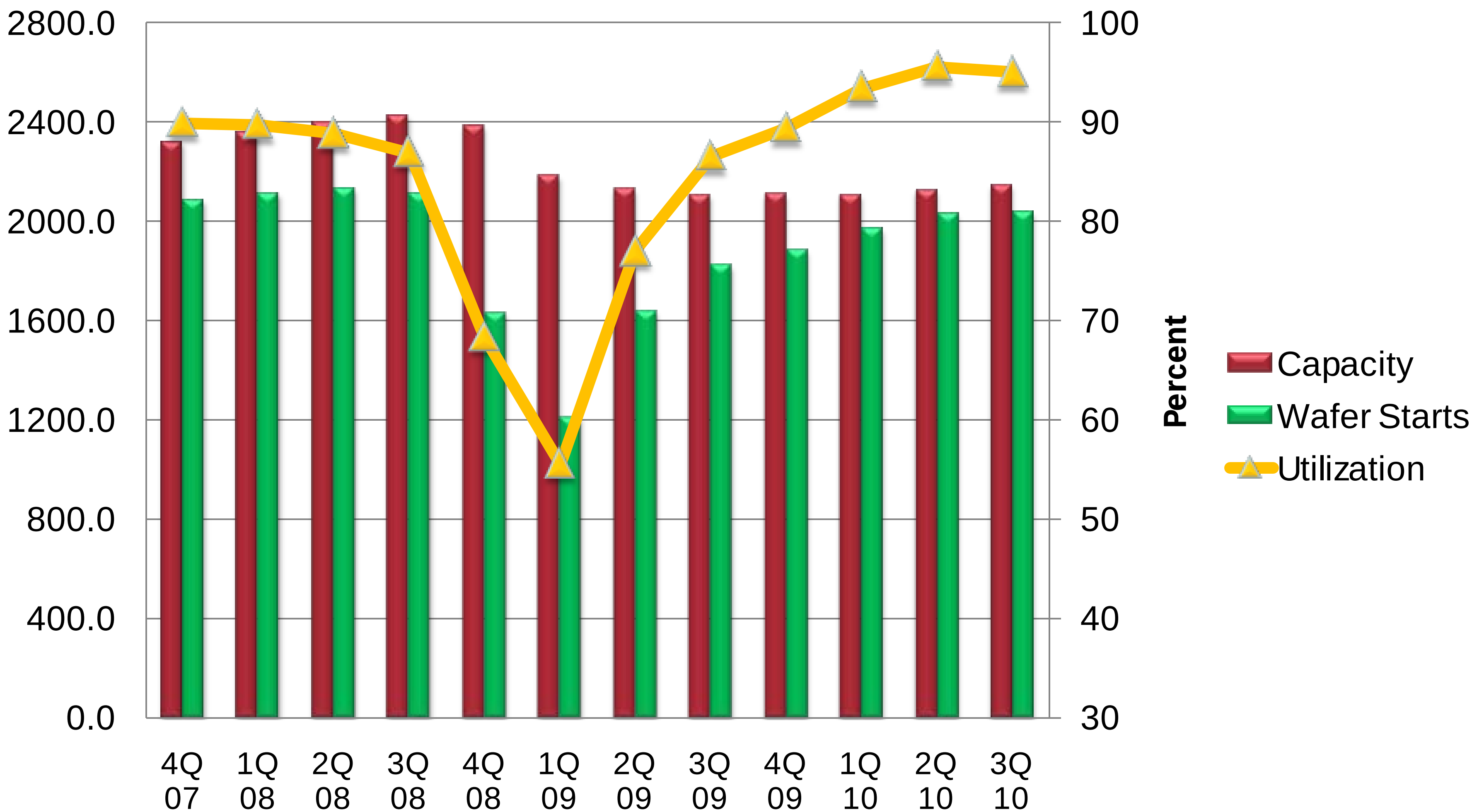


Fabless

- 24% of Revenue
- 84% of Companies

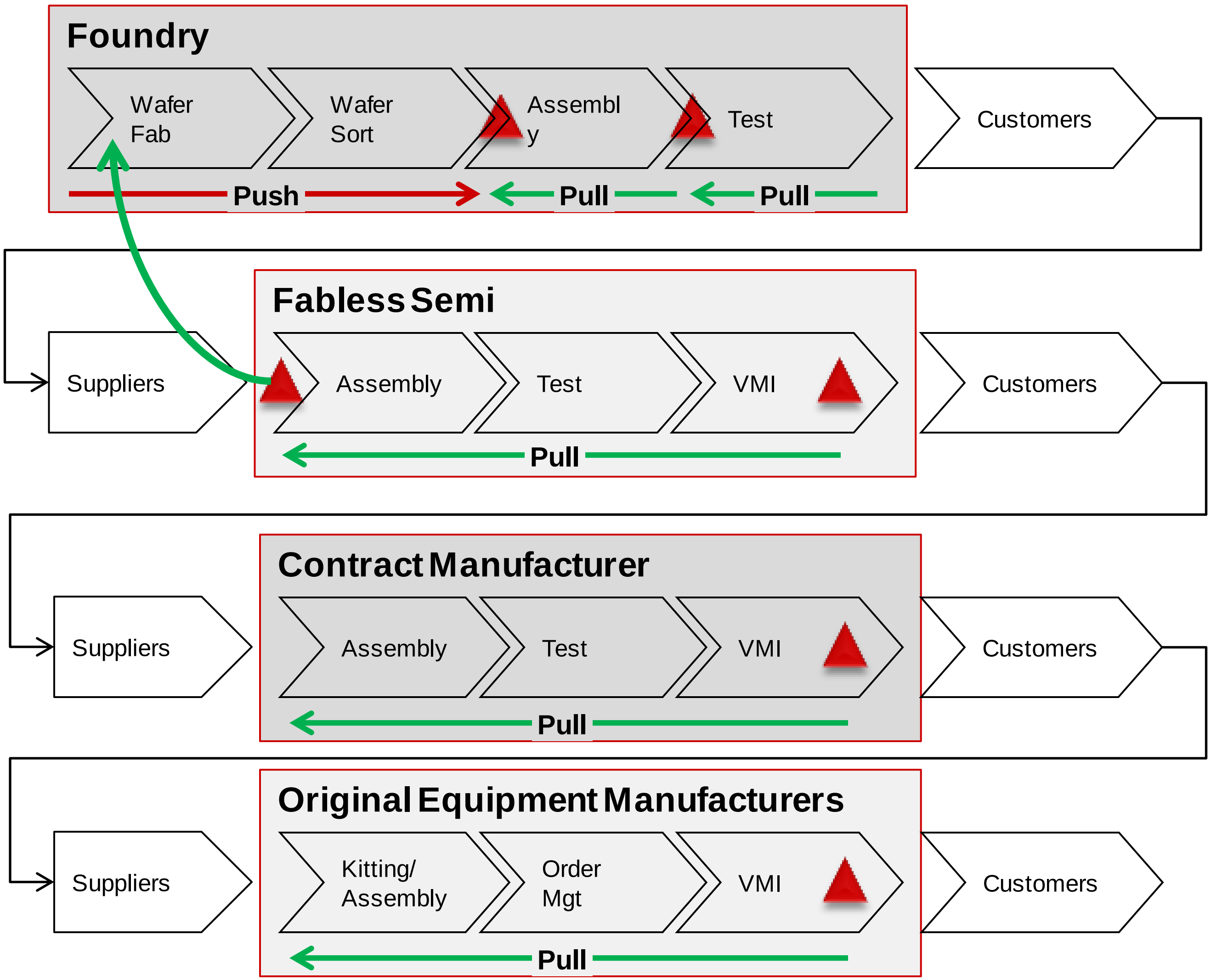
Source: SICAS

Foundry Concentration = Supply Chain Risk



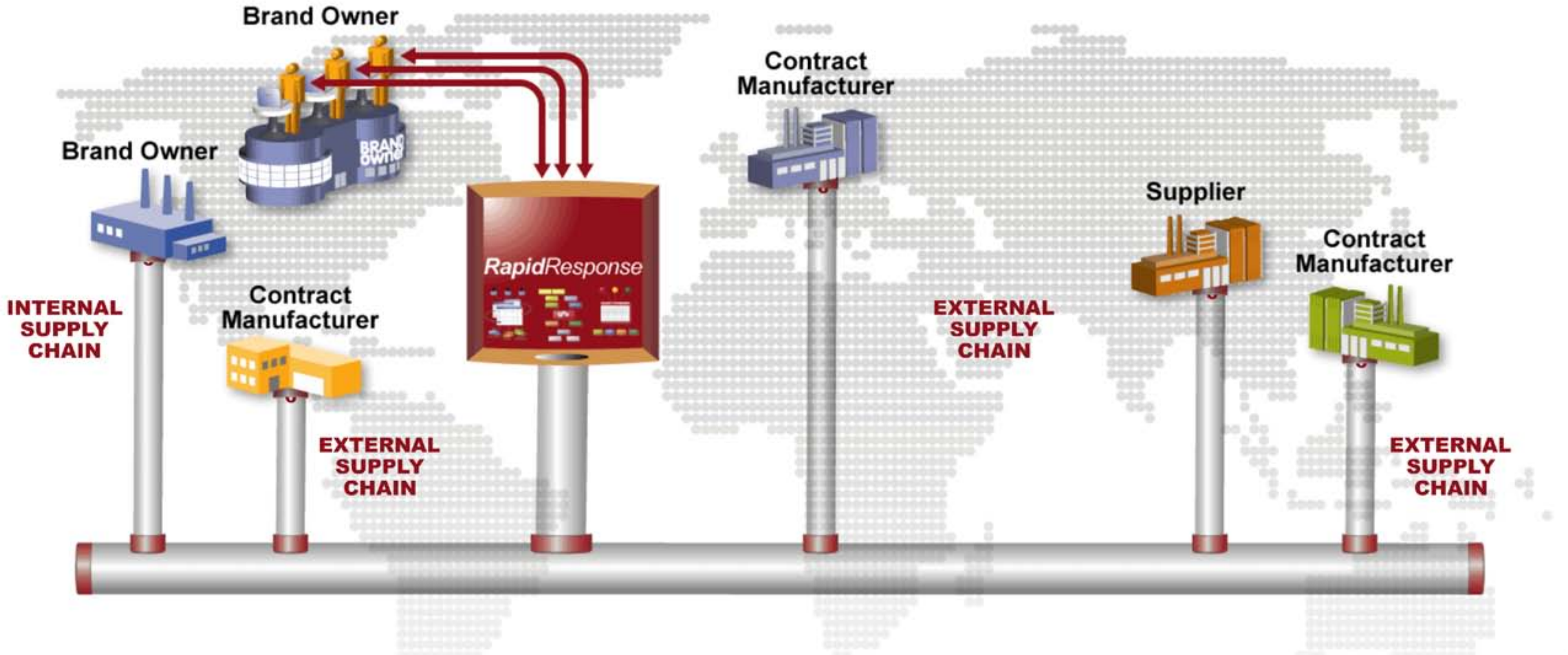
Source: SICAS

Postponement is key



- Very lean
- Tightly coupled
- Risk mitigation
- OEM/Fabless
  - Design
  - Sales
- CM/Foundry
  - Mfg
  - Efficiency

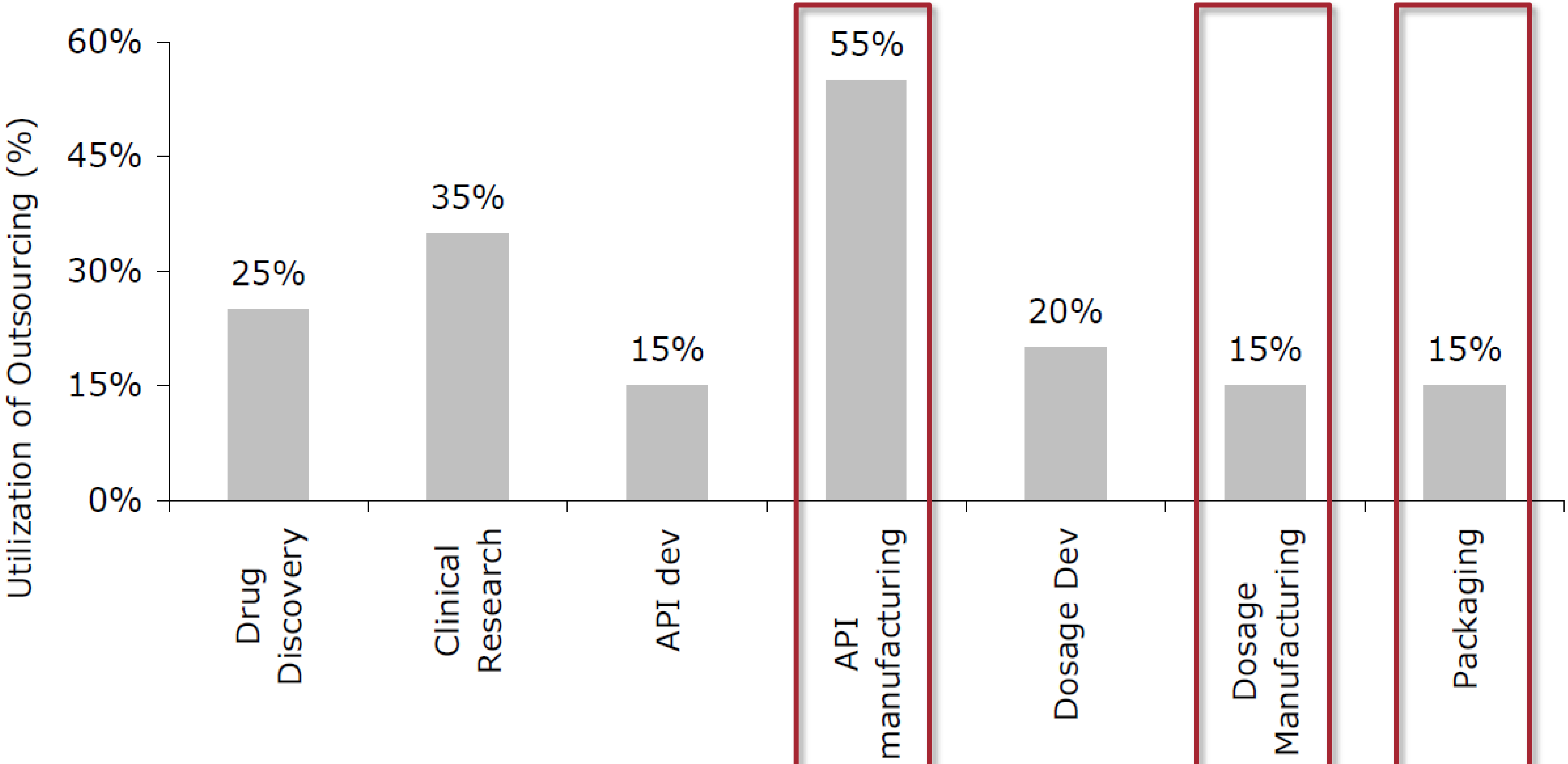
Visibility is a core requirement



- Secure systems integration across a globally distributed heterogeneous manufacturing environment
- Automated data exchange with ERP systems

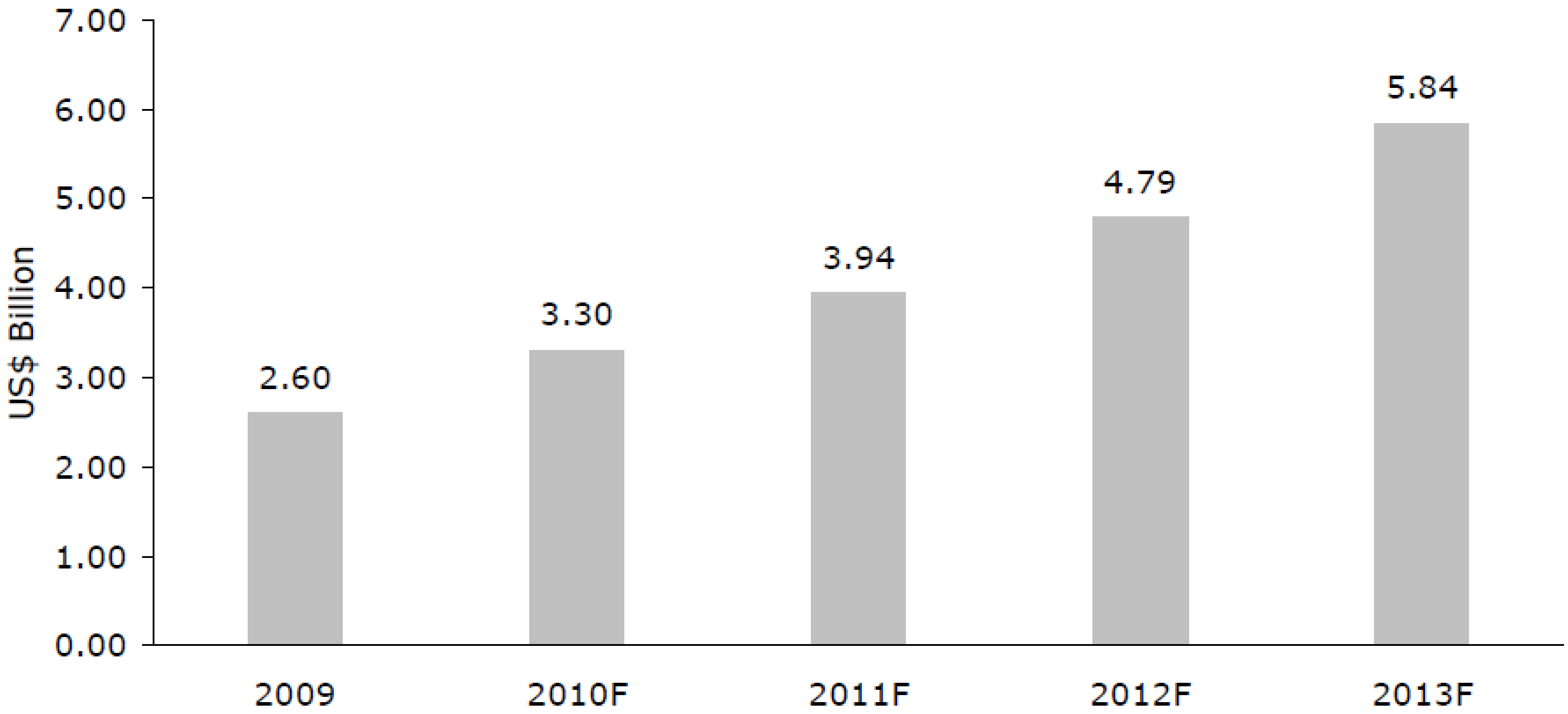
What this means for biopharma

Utilization of Outsourcing in BioPharma



Source: Frost & Sullivan

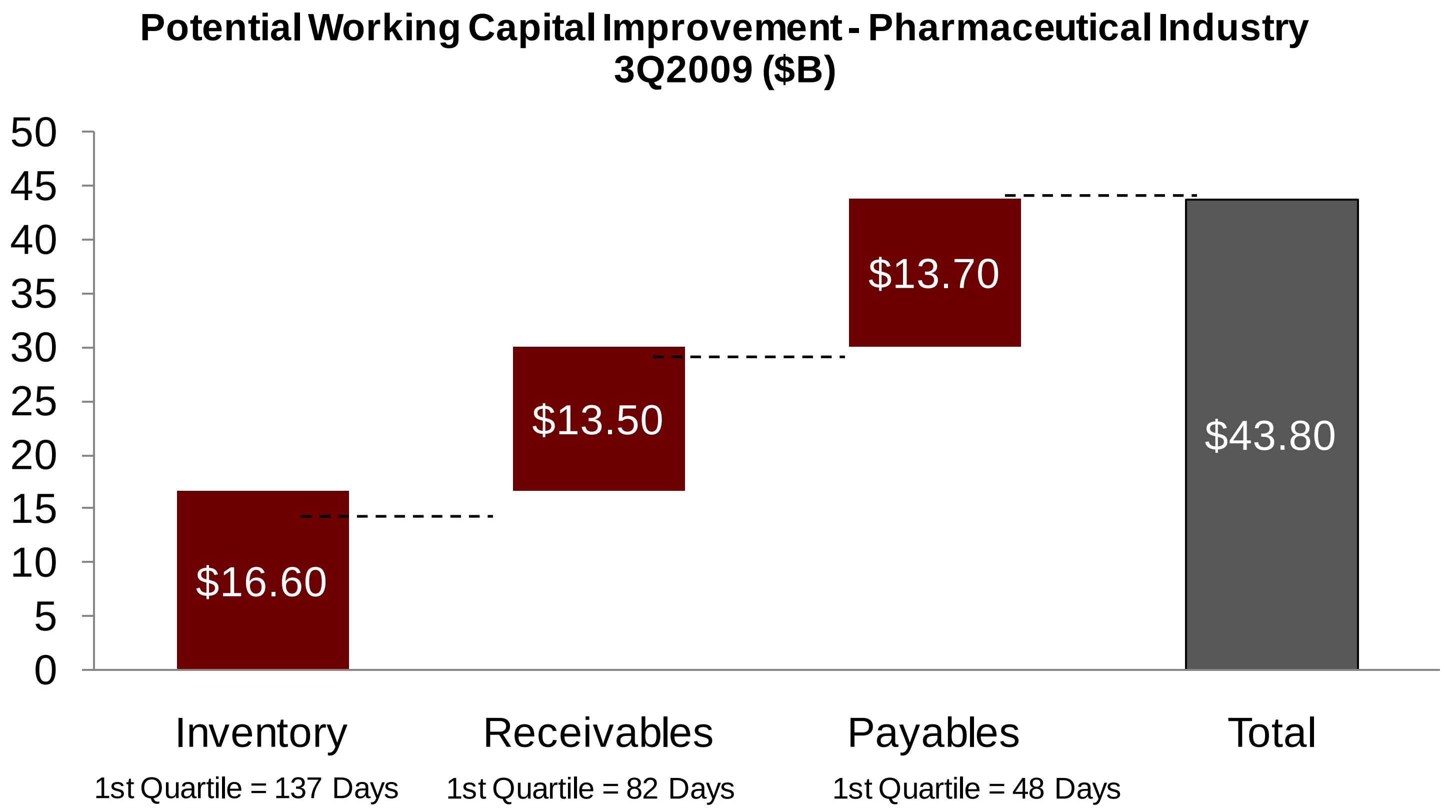
Global Bio-Pharma CMO Market Forecast



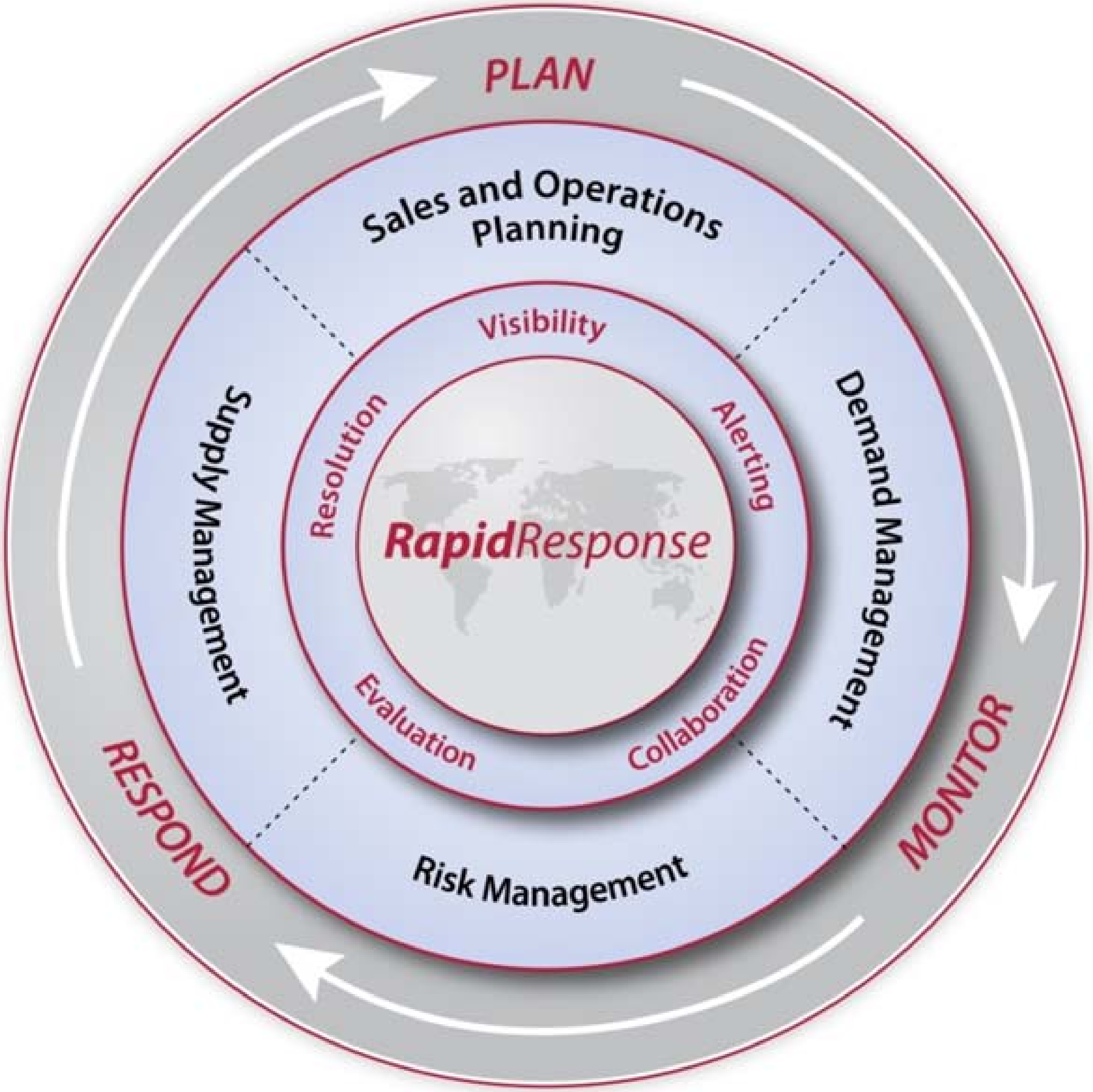
Source: Koncept Analytics

Supply Chain efficiency impacts the bottom line

ATKEARNEY The Pharmaceutical industry can free up over $43B in cash by operating at the first quartile of industry performance



Source: *How to Unlock $43 Billion in Value by Improving Working Capital Management*, PharmaPro.com
By Carol Cruickshank, David Hanfland, Paul Inglis and Shiv Shivaraman; A.T. Kearney, Tuesday, April 27, 2010



- Single data model
- Single UI
  - Role specific views
- Single set of analytics
  - S&OP
  - Demand planning
  - Supply planning
  - Inventory mgt
  - Lean
  - CTP
  - …
- Imbedded reporting/alerting
- Long/medium/short term
- Finance & Operations

Thank You!
Questions?