



AKHIL PARASHARA

BHAUMIK DEDHIA

LEI XU

# What is TI?

- Electronics company making semiconductors.
- Third largest semiconductor manufacturer
- Largest digital signal processors (DSP) vendor

Q2-12 Rank	Company Name	Q2-11 Revenue	Q2-12 Revenue	Revenue Percent Change
1	Intel	11,645	12,010	3.1%
2	Samsung Electronics	7,159	7,571	5.8%
3	Texas Instruments	3,597	3,128	-13.0%
4	Qualcomm	2,319	2,869	23.7%
5	Toshiba	2,786	2,381	-14.5%
6	SK Hynix	2,523	2,233	-11.5%
7	STMicroelectronics	2,567	2,147	-16.4%
8	Renesas Electronics Corp.	2,253	2,098	-6.9%
9	Broadcom	1,742	1,917	10.0%
10	Micron Technology	1,815	1,780	-1.9%
Other Companies		39,141	37,113	-5.2%
Total Semiconductor		77,547	75,247	-3.0%

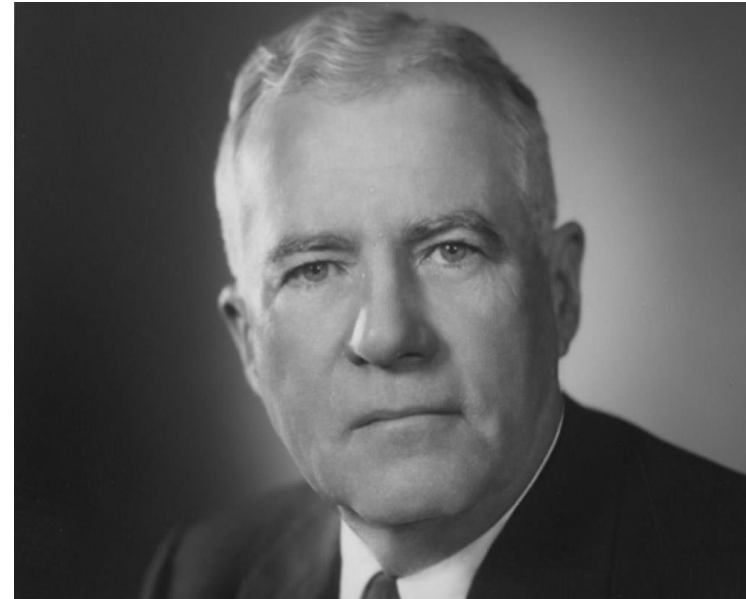
# TI's Foundation



Cecil H. Green



J. Erik Jonson



Eugene McDermott

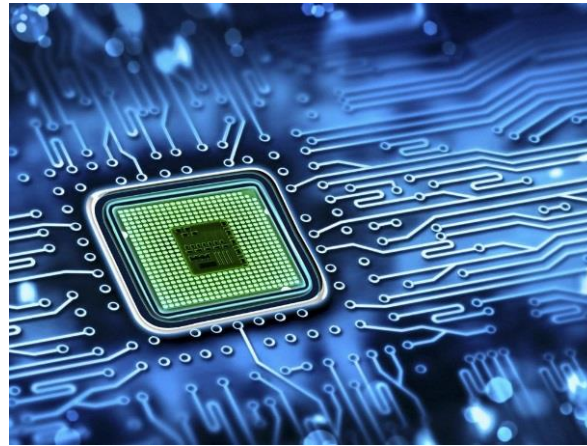


Patrick E. Haggerty

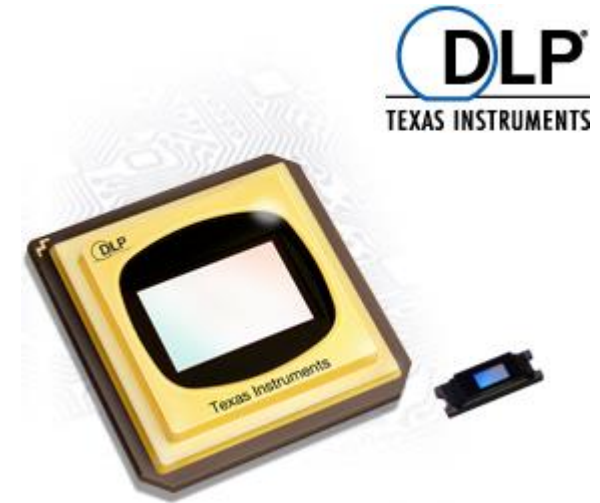
# TI's Divisions



Educational Technology



Semiconductors



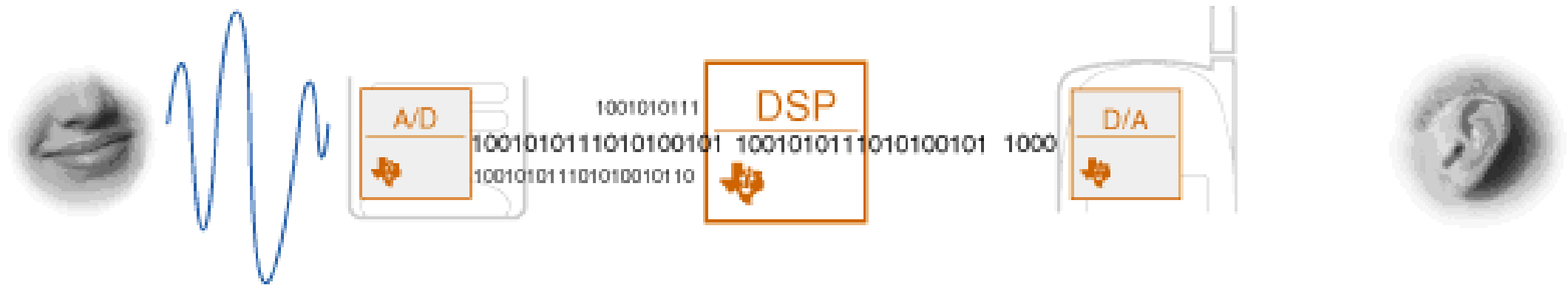
Digital Light Processing

Semiconductor products:

Digital signal processors, High speed digital-to-analog converters, Microcontrollers.

# What is Digital signal processing (DSP)?

A techniques that makes analog signal to be processed in a digital representation.



When you speak, your voice is picked up by an analog sensor in the cell phone's microphone.

An analog-to-digital converter chip converts your voice, which is an analog signal, into digital signals, represented by 1s and 0s.

The DSP compresses the digital signals and removes any background noise.

In the listener's cell phone, a digital-to-analog converter chip changes the digital signals back to an analog voice signal.

Your voice exits the phone through the speaker.

# Timelines

- 1978

- TI made TMC0280/TMS5100, the first self-contained LPC speech synthesizer integrated circuit.
- Introduced digital signal processing technology to consumers.

- 1980s

- TI introduced its first commercial single-chip DSP, the TMS32010.
- First float point DSP, highest performance fixed point DSP, DSP Textbook.

- 1990s

- Enable real-time, full-duplex interactive videoconferencing, imaging systems.
- TMS320 Software Cooperative.
- Won 1996 Institute of Electrical and Electronics Engineers (IEEE) Corporate Innovation Award
- Started making DSP-based embedded processing systems.

# Timeline

- 2006
  - TI acquired Chipcon for \$200 million.
- 2008
  - TI announced they were no longer a DSP company but an Analog and Embedded Processor company.
- 2009
  - TI acquired Luminary Micro
- 2011
  - TI acquired National Semiconductor for \$6.5 billion in cash.
- 2012
  - TI completed strategic changing to become an analog and embedded processing company.



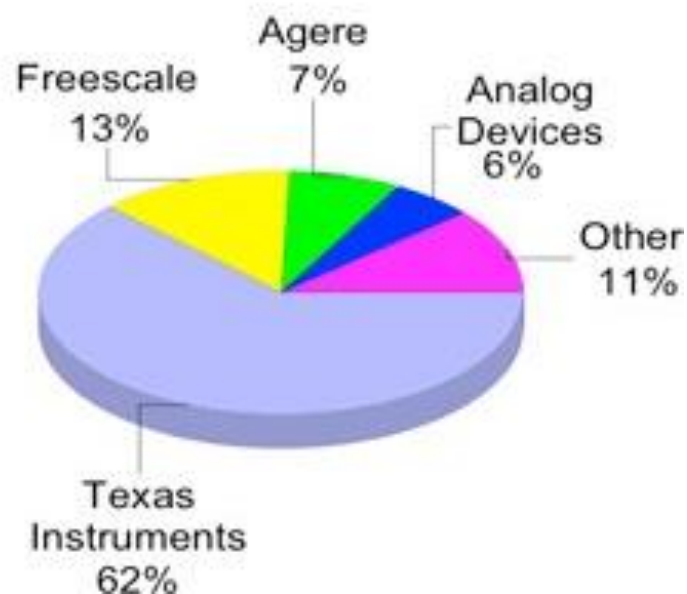
TMS32010	First commercial single-chip DSP
TMS320C2x	Second generation DSP.
TMS320C3x	First floating point DSP.
TMS320C5x	Highest performance fixed point DSP.
TMS320C4x	Second floating point generation.
TMS320C80	First commercial single chip processor which combined both a RISC processor and multiple parallel DSPs.
TMS320C32	The first to bridge the gap between fixed and floating point DSPs.
TMS320C82	Industry's most highly integrated DSP.
TMS320C24x	First DSP generation which specifically designed to improve system performance, lower system cost, and reduce component count in digital motor and motion control systems.
TMS320C6x	The most powerful DSP generation worldwide.



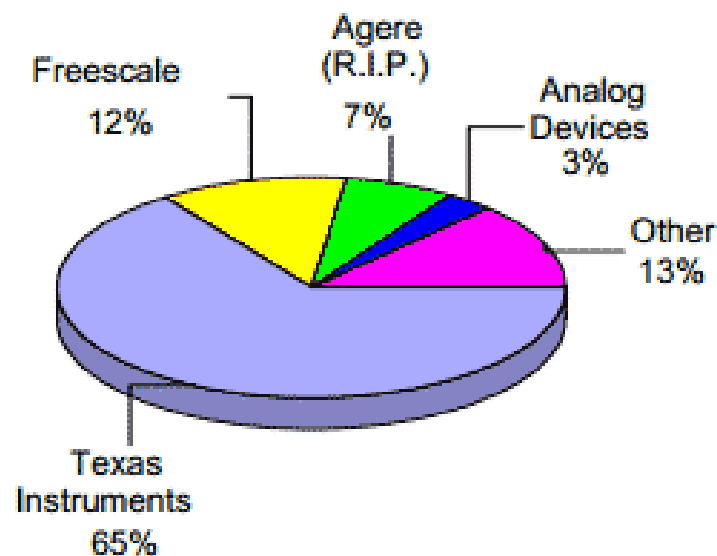


# DSP Market Share

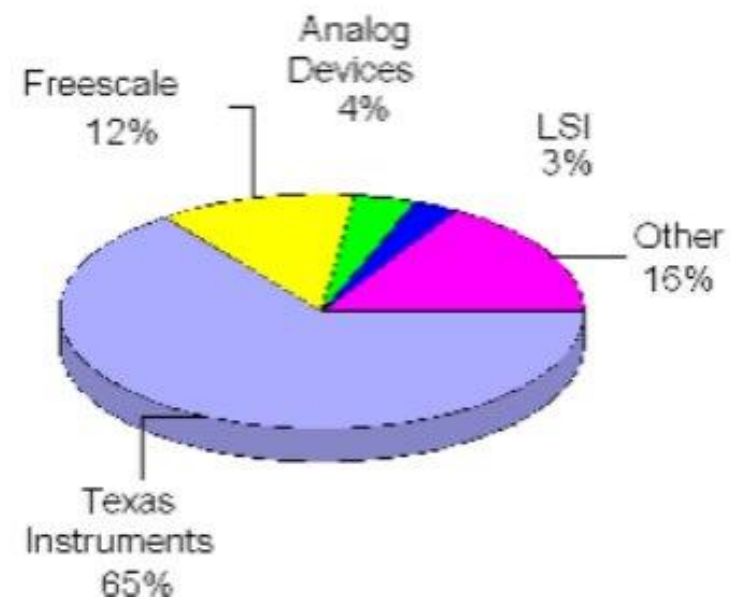
CY 2006: \$8.3 Billion



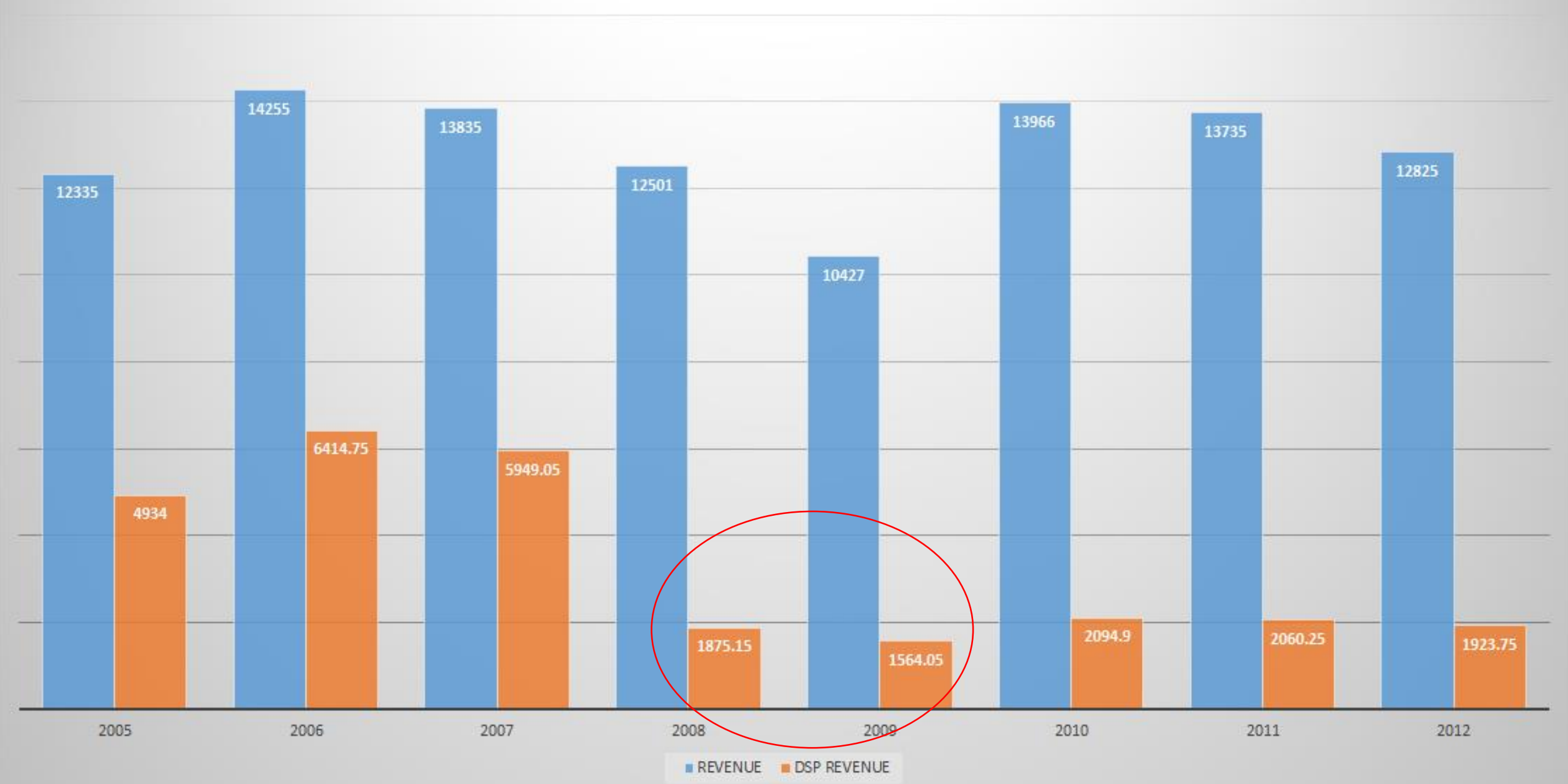
CY 2007: \$7.8 Billion



CY 2008: \$6.5 Billion

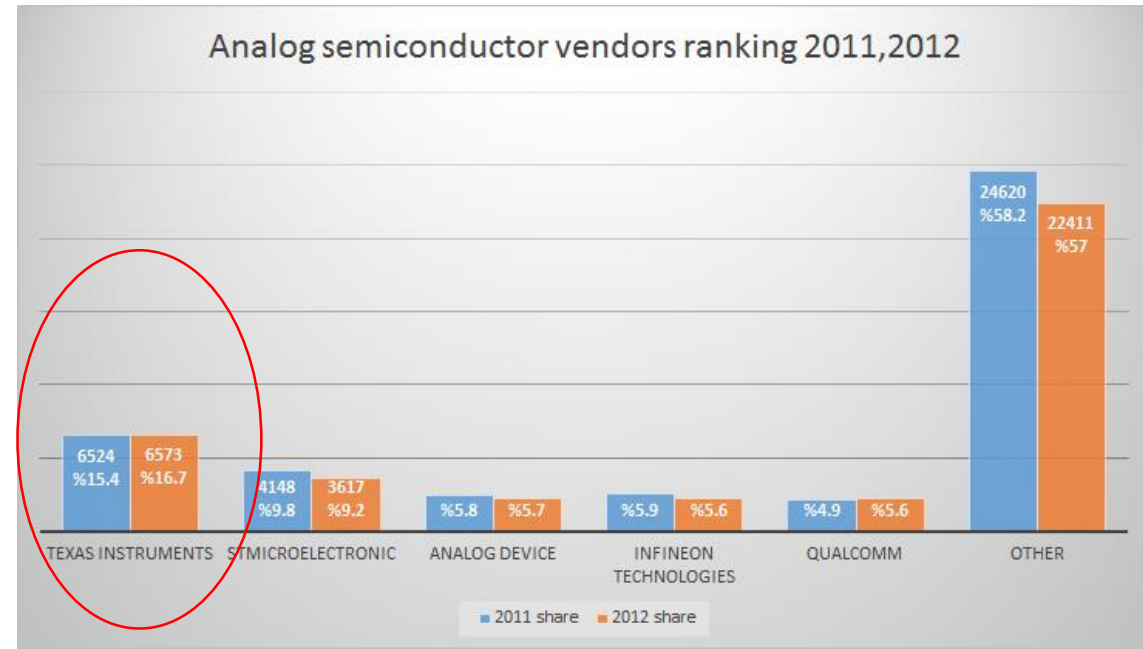
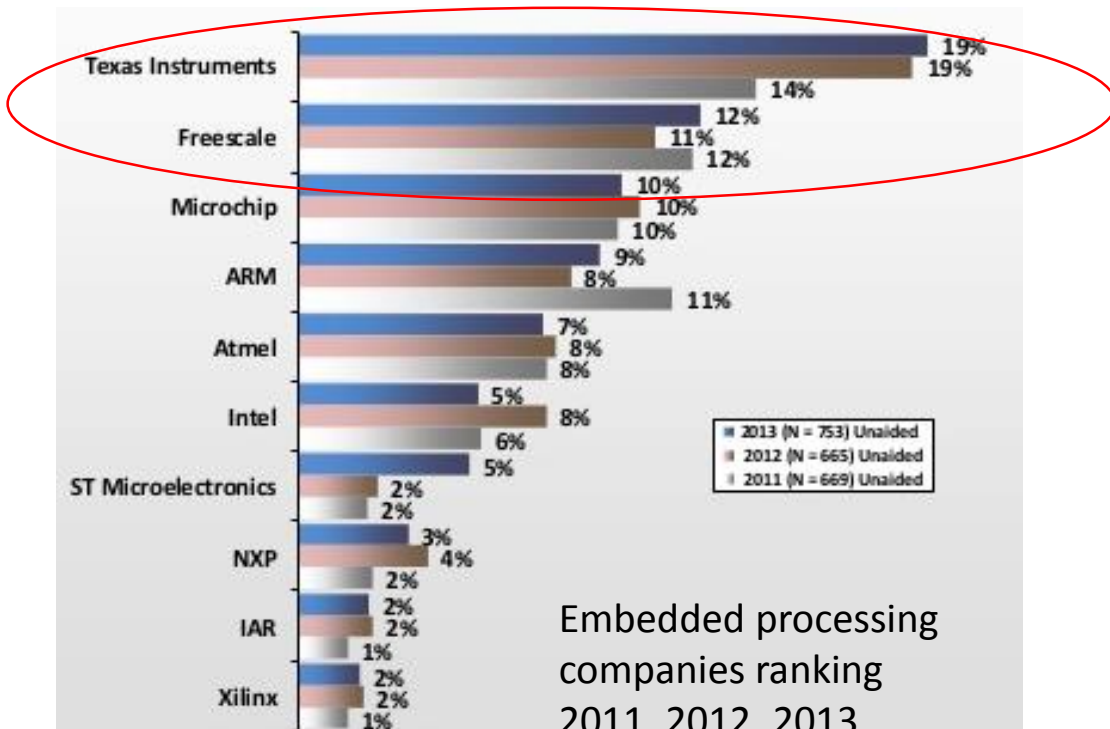


# DSP REVENUE ANALYSIS



# Embedded Processors & Analog Semiconductor

- Embedded processing products include DSPs and microcontrollers.
  - Communications infrastructure equipment and automotive.
- Analog semiconductors are used to change real-world signals.
  - Conditioning, amplifying



# STAKE HOLDERS ANALYSIS

## CUSTOMERS:

- Serving more than 100,000 customers over more than 35 countries across the globe.
- Happy Customers bring humongous cash flows for the company.
- With big name, comes big responsibilities which TI has so far maintained pretty well.

## EMPLOYEES

- More than 34,000 HAPPY employees across the work.
- With sharpest brains and positive attitudes, growth of TI has sky rocketed in last decade.
- TI has also been voted as top 5 companies having excellent work environment and culture after Facebook, Google, Microsoft and Apple.

# STAKEHOLDERS' ANALYSIS CONT.

## RIVALRS

- In semiconductor industry TI faces enormous competition from giants like Intel, Qualcomm, Samsung, STMicroelectronics etc.
- Cut throat rivalry for the market share. With TI's 12 % market share in 2011 make them the market dominant leading ahead from STMicroelectronics and Intel.
- Everybody fighting to get their piece in \$37 billion Industry.
- It helps improving the quality and services for the company.

## STOCKHOLDERS/STOCK PRICES

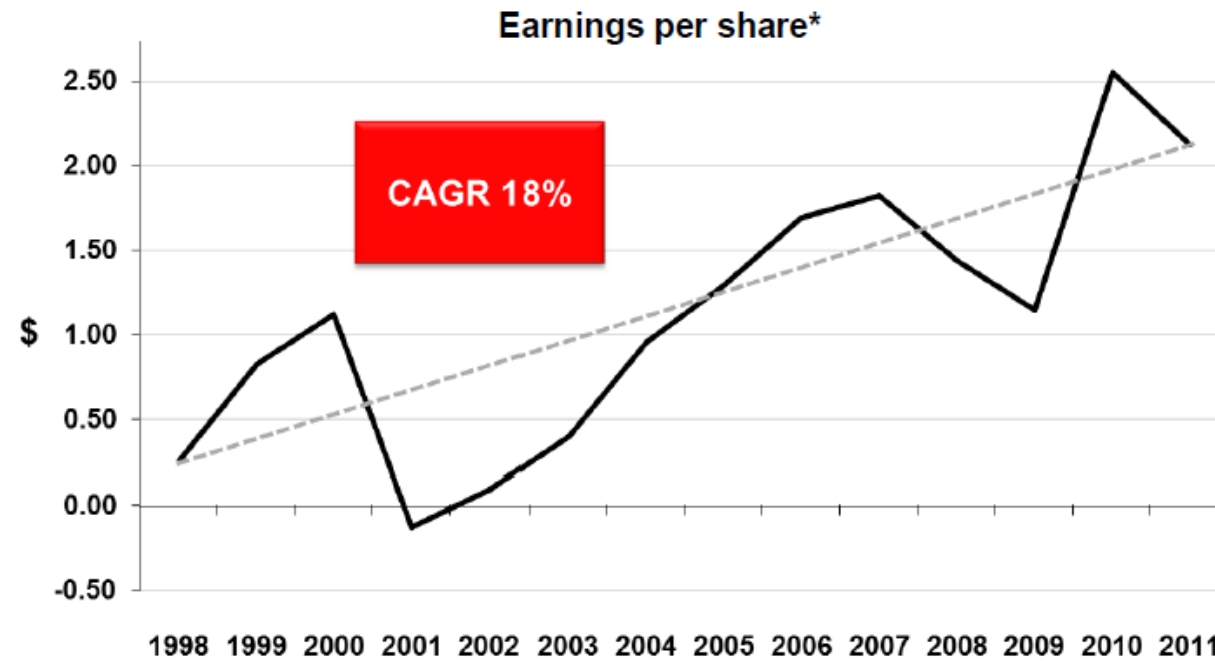
- TI has always made their stock holders happy. Their stock prices have constantly increased in last 5 years.
- With the result of that TI could leverage close to \$1 Billion from the market.
- Always a judicious and profitable investment for their the stock holders and other investors.

# Stock Price for TI in Last 10 years



# CAGR growth of TI's Earning per share

## Transforming TI: higher returns



\* Continuing operations from 2003; excludes gains/(losses) on sale of Micron stock of \$0.59, (\$0.37) and \$0.20 per share in 2000, 2002 and 2003. Excludes gain on sale of a product line of \$0.08 in 2010 and total acquisition charges of \$0.24 per share in 2011.



# SUPPLIERS

- With company's' exponential rise, many of the suppliers started collaborating with TI.
- With more than 18000 suppliers feeding for more than 30K products.

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Global spend with suppliers\*

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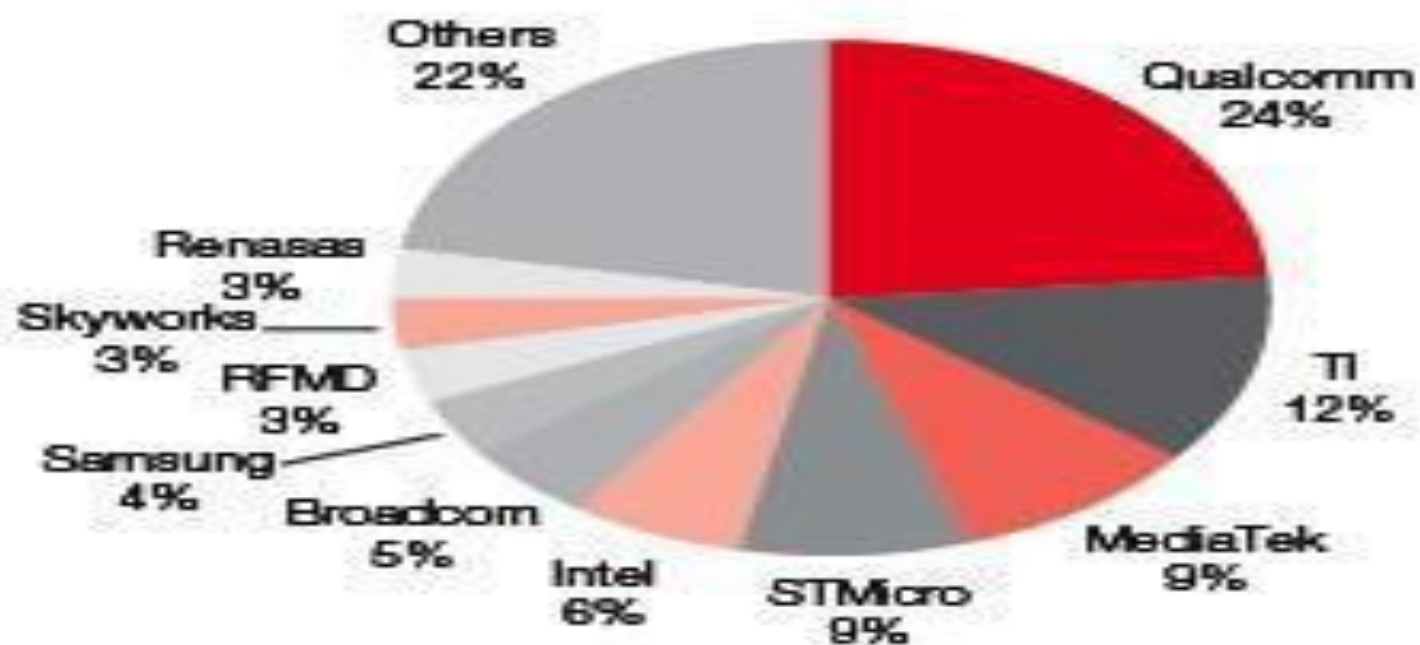
\*Approximately 5.1 percent of U.S. spend was with diverse suppliers.

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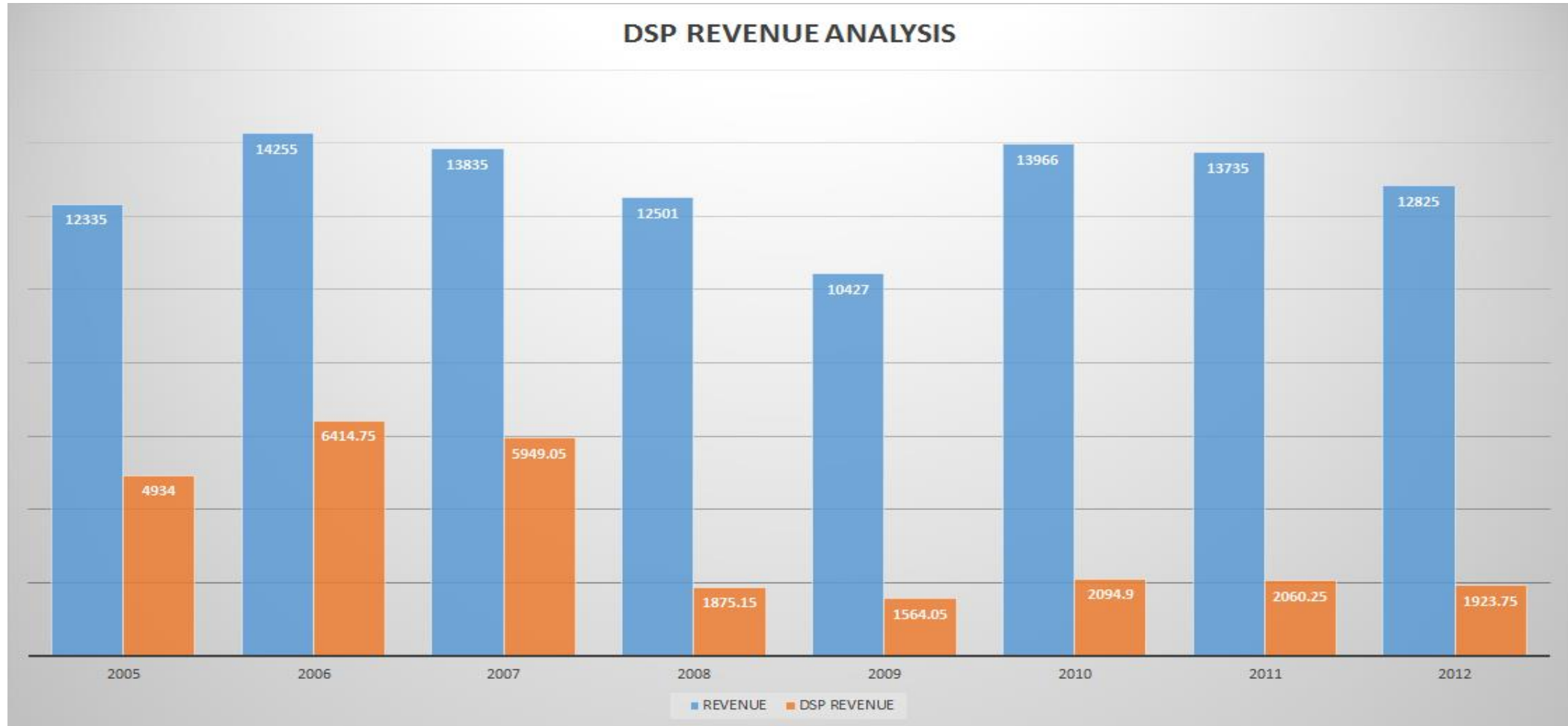
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# Mobile Semiconductor Industry Market Share

Mobile Semiconductor Market Share, 2011



# DSP revenue as a part of Total Revenue.



# So What happened to TI's Strategy in 2009??

TI bought National Semiconductor, one of the biggest giants in Analog industry .

BUT WHY?





## Porter's 5 Forces Analysis

# THREAT OF SUBSTITUTES - LOW

- Manufacture Chip for fraction of price
- More functionality

# BARGAINING POWER OF BUYERS - LOW

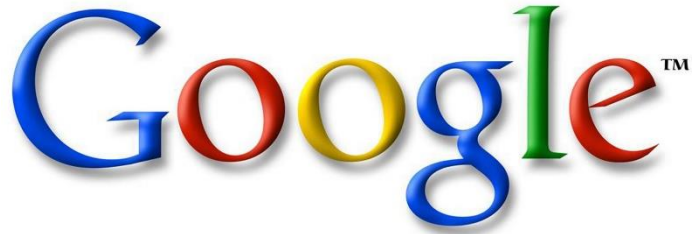
- Few large players in market





# Wide range of products





admires 'Locosto' – a single chip for low cost handsets

- Intel prefers TI's modem and cable products.
- TI's C2000 MCU perfect for Optisense's grid solution

# BARGAINING POWER OF SUPPLIERS - MODERATE

- TI has many suppliers for different materials.
- Can always reach out to a different vendor
- They appreciate vendors, give them awards – thus maintaining a good relationship.
- Incase of silicone wafers, the scenario changes.

# THREAT OF NEW ENTRANTS - LOW

- Designers would gain experience and start their own company
- The possibility of doing this was high in earlier days
- As of now billions of dollars are required to set up a semiconductor industry
- The already established companies, definitely have a huge advantage over the new ones

# INDUSTRY RIVALRY – VERY HIGH

- Main competitors are
- INTEL
- SAMSUNG
- QUALCOMM
- TOSHIBA

- TI ranks 3<sup>rd</sup> after INTEL & SAMSUNG with respect to ranking of sales
- Competition forces TI to sell their certain products at cheaper rate or to come out with more enhanced solutions.
- Semiconductor industry depends on –
  1. Variety of products
  2. Technological innovation
  3. Strength of sales network
  4. Customer service
  5. Price

# TI's Rivalry – THEN & NOW

- Earlier TI didn't have much rivalry
- As technology advanced, Industry rivalry kept on increasing
- TI was biggest player for manufacturing Mobile chips for and low power consumption chips for
- 96% revenue came from semiconductor industry and 30% from mobile chips.



**NOKIA**  
Connecting People



- With



coming in to picture, TI faced tough

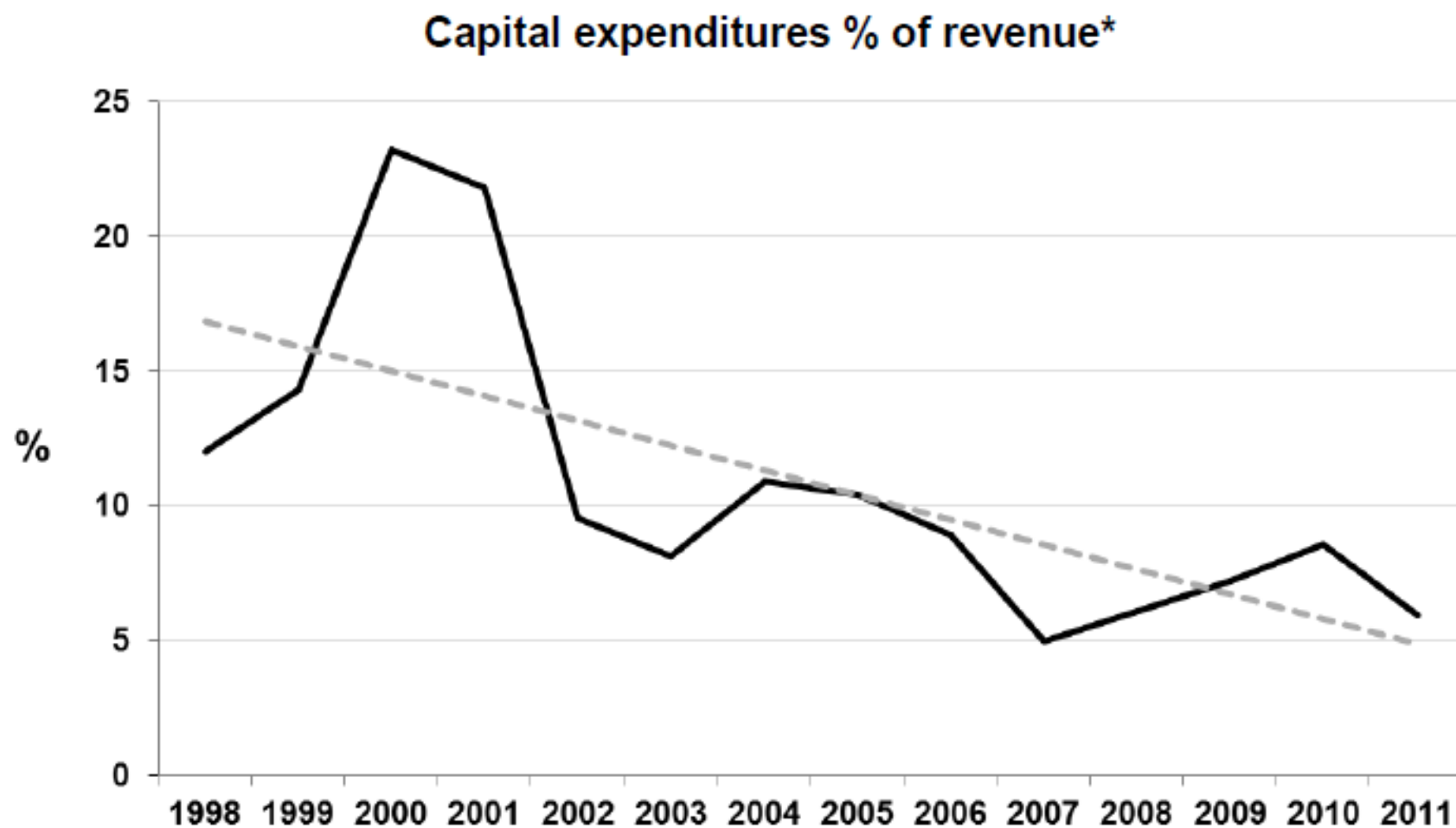
Competition from QUALCOMM.

- NOKIA loses market share for smart phones
- Apple comes out with its own chip.

- It was time to change their focus on different things
- **“IN THIS WORLD THE BIGGEST COMPETITIVE CHALLENGE IS TO HAVE BEST CUSTOMERS” – TEMPLETON, CEO, TI.**
- Focus changes to Analog and embedded

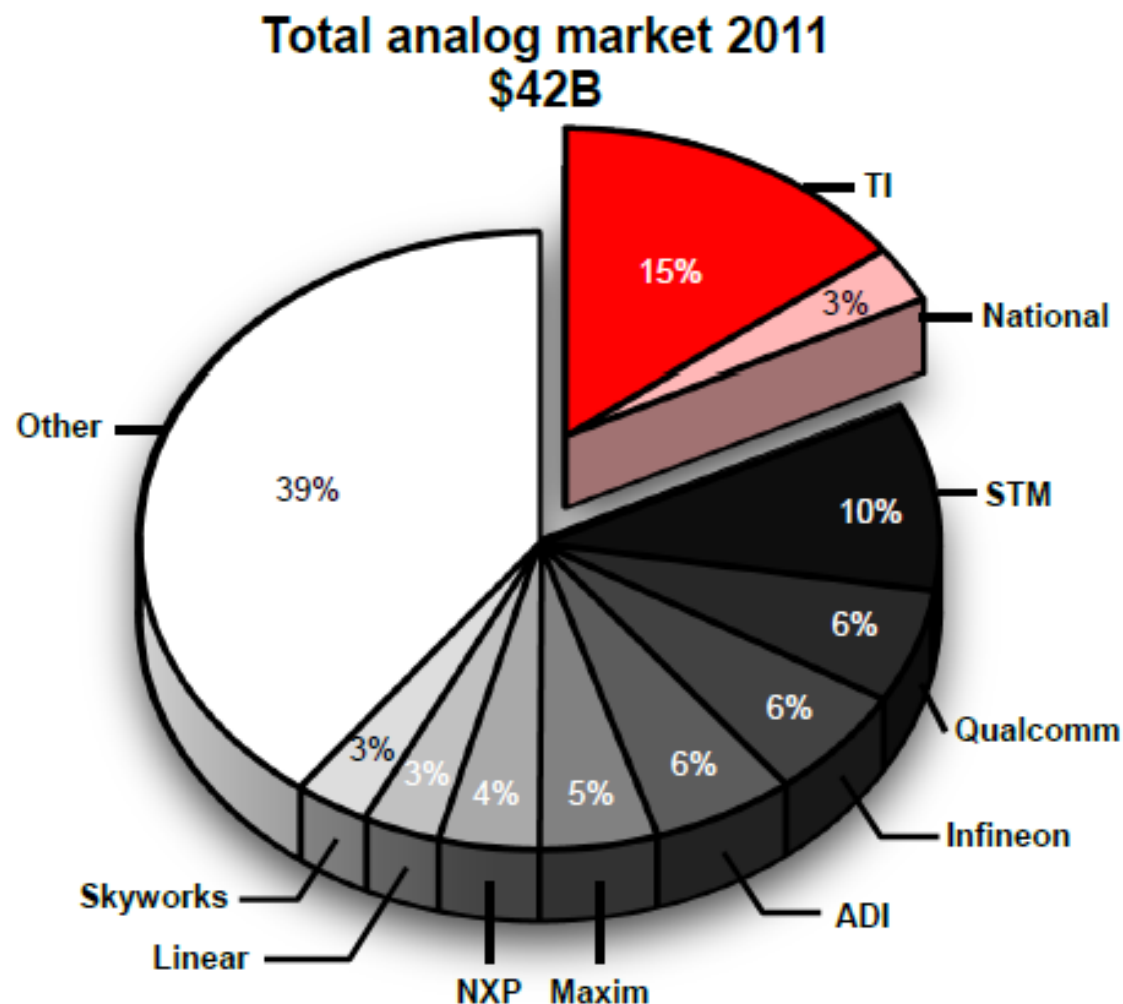
- Analog market worth \$ 42 Billion & embedded worth \$ 18 Billion
- TI already had more than 90,000 customers who needed analog and embedded processing solutions
- Capital need was less as they already had the required equipment.

## Transforming TI: lower capital needs result in more cash



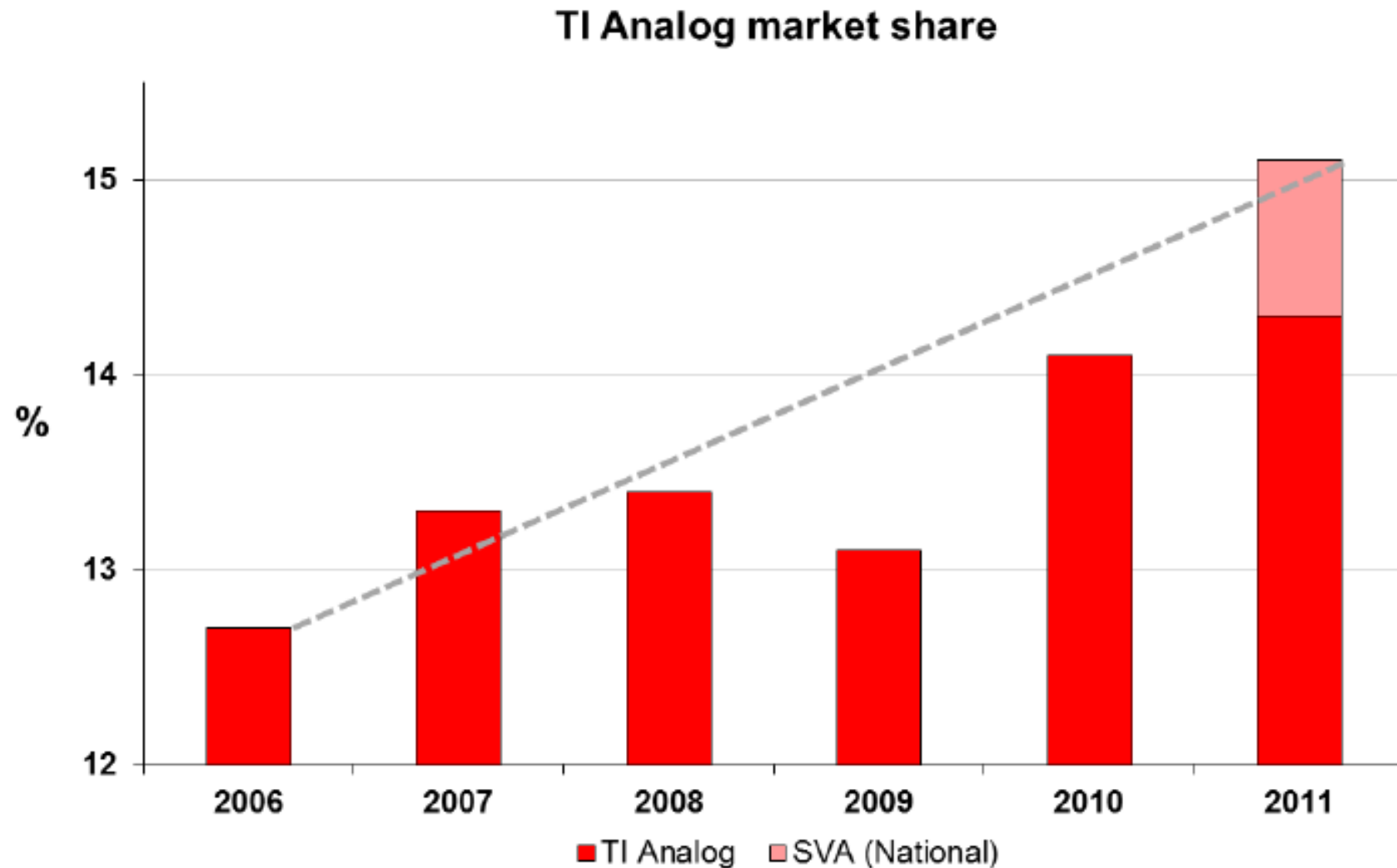
- 31 companies take 80% of the market share for analog.
  - TI has 15% making it number 1
- 
- 10 companies take 80% of market share for embedded.
  - TI has 12% making it number 2
- 
- To hold their position in the market, the next viable step for TI was to buy National Semiconductors which would give them a big boost in the industry.

# National is a powerful addition



- 12K compelling products complement TI's 30K analog products
- Highly skilled analog engineering team
- Combined sales force 10x National's – more customers, more markets, more revenue
- Cross-selling with "Winning Combo's" makes it easier for customers to use more TI content

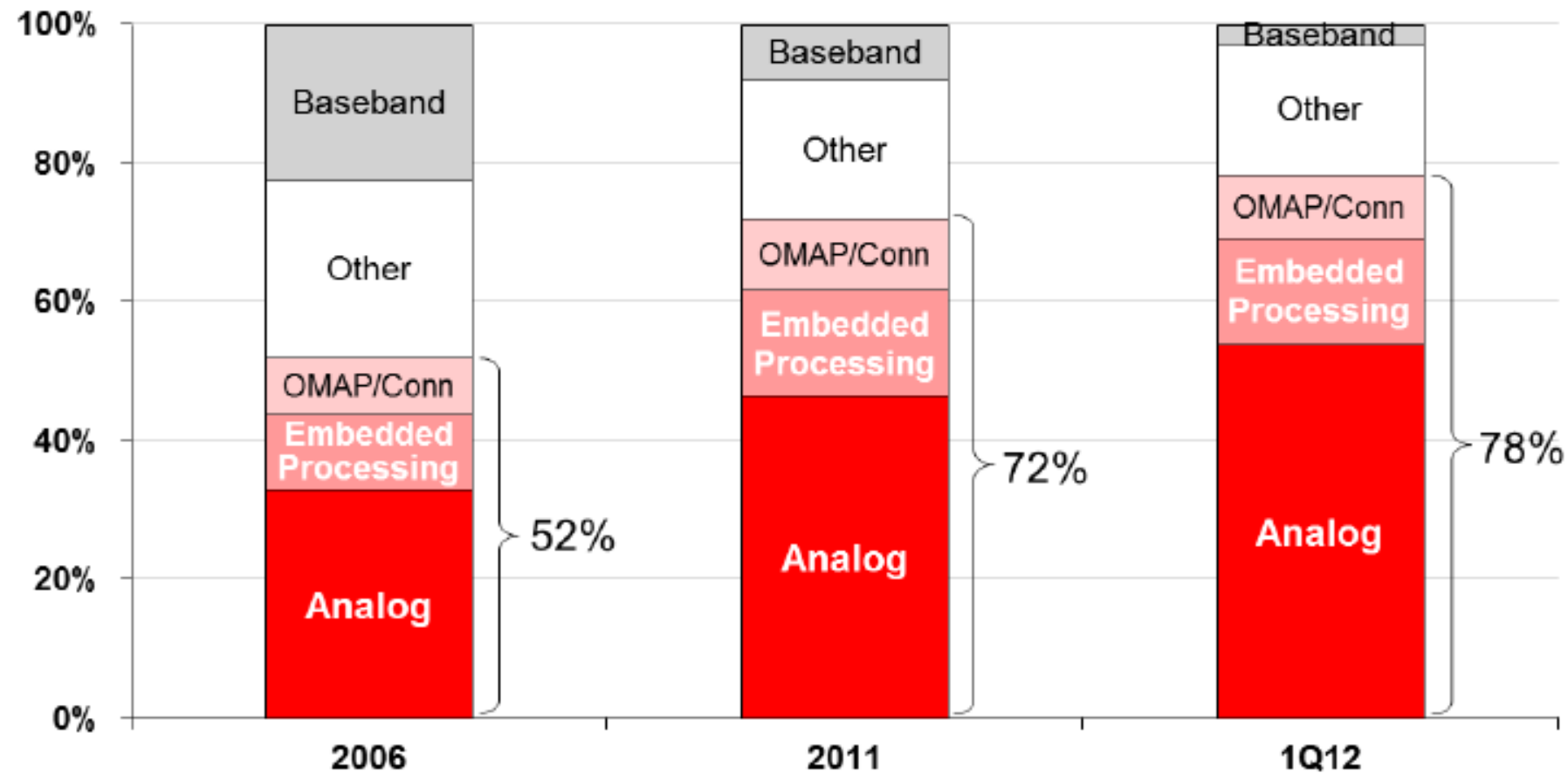
# TI Analog is growing faster than market



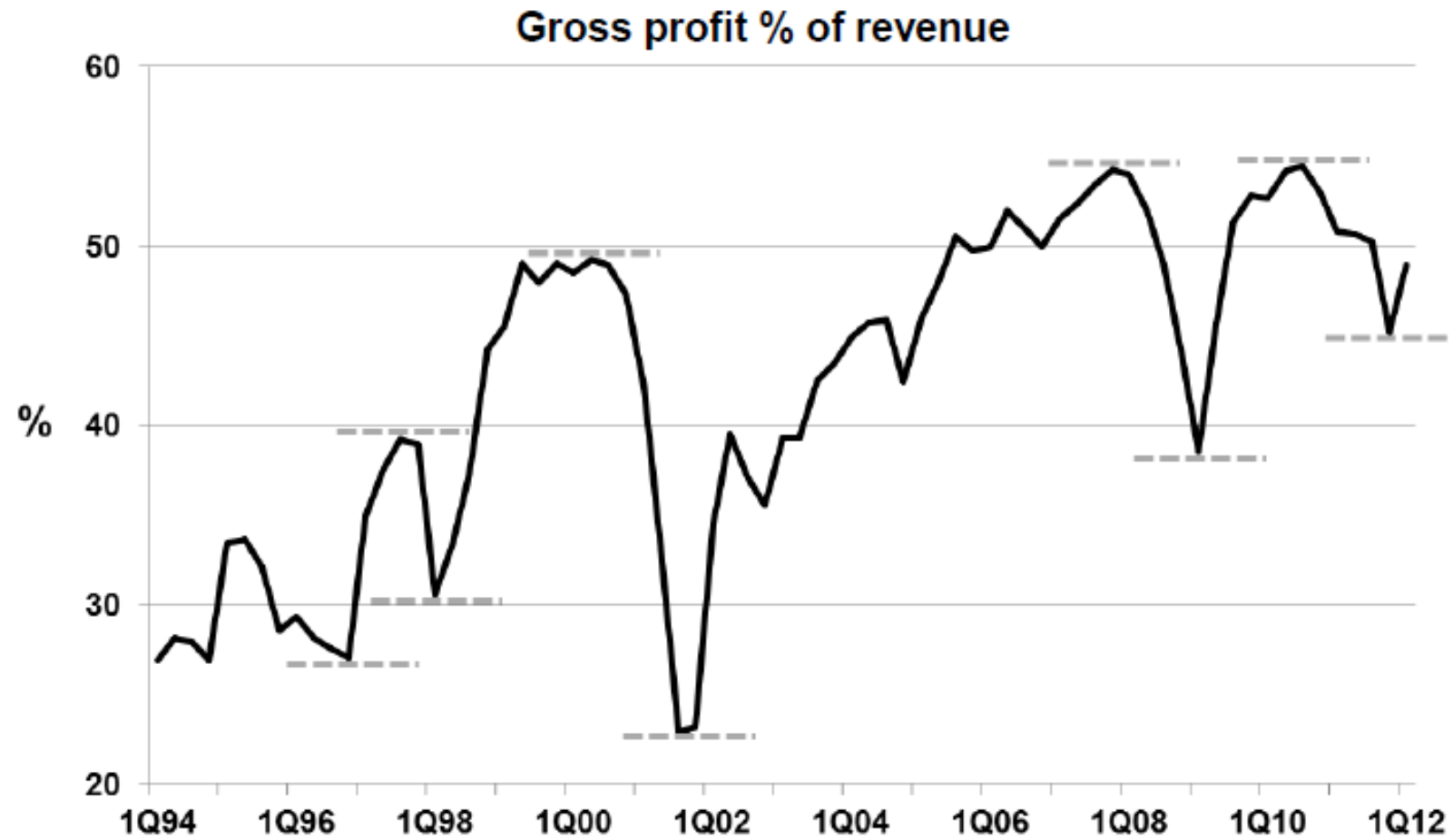


# Transition to higher quality revenue nearly complete

TI revenue mix



## Transforming TI: more profitable



THANK YOU