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TECHNOLOGY

# KPMG Global Semiconductor Survey

A more optimistic  
outlook for 2013

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## Foreword

We are pleased to present the results of KPMG's latest Global Semiconductor Survey. The eighth edition of our annual study reflects the expectations of senior leaders from the world's leading semiconductor companies about revenue trends, application markets, technology evolution, geographic growth, and other factors influencing the global semiconductor industry over the next three years.

Our bellwether Semiconductor Business Confidence Index and responses to most survey questions highlight a more optimistic outlook among the semiconductor leaders, who, coming off a challenging 2012, largely believe the industry is on the cusp of a recovery that they expect to begin most likely in the second half of 2013 before gaining momentum in 2014 and 2015.

Industry leaders also shared more favorable views about the sector's profitability and employment growth than we saw last year. Two-thirds of the respondents plan to add headcount next year, compared with less than half in 2011. The results also indicate a shift toward the United States, second to China, as an increasingly important geography for semiconductor headcount growth.

While consumer electronics, mobility and computing remain the leading applications for semiconductor industry revenue improvement, executives are calling for a broader-based recovery as industrial and automotive also demonstrate favorable growth.

We hope you find this report's insights useful, and welcome any feedback you would like to offer.



**Gary Matuszak**

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## Executive Summary

After a disappointing and challenging 2012, semiconductor executives believe the worst is nearly behind them and are making investments to position their companies for a sustained and broad-based, multi-year recovery.

**KPMG's Semiconductor Confidence Index** expresses, in a single figure, responses to a standard set of questions about executives' outlook on the following:

- Total company semiconductor revenue growth for the next fiscal year
- Annual profitability of the global semiconductor industry next year \*
- Global workforce growth for the next 12 months
- Change in R&D spending for the next fiscal year over the current year
- Capital spending for the next fiscal year

An index value above 50 can be interpreted as an optimistic outlook on the business environment for the next 12 months; conversely, an index value below 50 reflects a pessimistic view.

Since it was introduced in 2006, the index has been a remarkably reliable barometer of future financial and operational trends in the semiconductor industry.

*\* New index component added to the survey this year.*

The KPMG Semiconductor Business Confidence Index (described on the previous page) has climbed to 57, reflecting improved optimism and a notable shift from the negative sentiment indicated by the index of 46 recorded in last year's survey.

This year's favorable outlook can also be seen in the responses to several survey questions, including executives' expectations for increased R&D spending. More than three-quarters (77 percent) of the industry leaders expect R&D investments to rise, a significant increase from last year.

Similarly, nearly three-quarters (73 percent) of the respondents expect their company's semiconductor-related capital spending (for equipment and software) to increase over the next fiscal year. This compares favorably with the 51 percent who were forecasting capital spending growth last year.

Looking at their expectations for industry growth, three-quarters of the respondents believe their companies' revenue will increase in the next fiscal year, and 83 percent are projecting higher growth rates for the next three years as a recovery begins in 2013 and gains momentum in 2014. Both results mark a substantial improvement over our prior-year survey, when industry executives correctly forecasted this year's challenging results.

Executives reported similar improvements in their expectations for increases in industry profitability (a new component in the Business Confidence Index). More than 70 percent expect profitability to grow, with more than one in five forecasting increases above 10 percent.

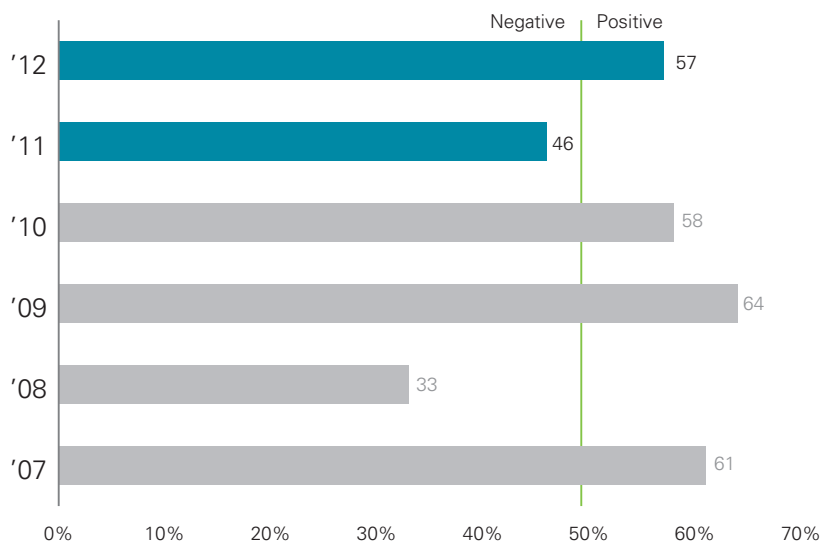
As in past survey results, wireless is expected to remain a major growth driver for the semiconductor sector. But executives believe the coming recovery will be broader-based, with additional application markets including mobile payments, automotive and power management being cited this year.

Semiconductor executives also see the industry's technology roadmap accelerating, with nearly half saying 450nm production will have a greater impact on the sector than production at a sub-20 nanometer node.

Looking at revenue growth expectations geographically, executives continue to believe the United States and China will be the most important regions for growth, but the U.S. has replaced China, affected by slowing economic conditions, as the most important source of revenue growth in the opinion of survey respondents.

As another sign of their willingness to invest for growth, executives see the global semiconductor workforce expanding. Respondents cited the United States as a leading location for headcount growth, with slower growth in China than they forecast in previous editions of the survey. ■

## Semiconductor Industry Business Confidence Index: 2007-2012



An index value of 50 indicates a neutral perception about the industry and its prospects. Index values above/ below 50 indicate a positive/ negative perception. Industry profitability was added as a new index component in 2012. "Revenue growth in the primary application market" is not included in the 2009, 2010, 2011 and 2012 index calculation; however, the overall component of revenue growth included in the index is weighted proportionally the same as in previous survey years.

# Survey Highlights

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- 6 Revenue Growth** The percentage of executives expecting to see revenue growth was 75 percent, a notable increase from the 63 percent of respondents with similar expectations last year. Perhaps more tellingly, the executives forecasting a revenue increase of more than 10 percent reached 24 percent, compared with 15 percent in last year's results.
- 7 Profitability** As with their optimistic expectations for revenue growth, semiconductor executives are forecasting significant increases in profitability as the industry recovers from its 2012 downturn. Nearly three-quarters (71 percent) are forecasting profitability growth, compared with 60 percent last year.
- 8 R&D Spending to Increase Significantly** Optimistic about future growth trends, semiconductor executives are forecasting notable increases in their company's R&D investments. More than three-quarters (77 percent) are calling for R&D spending to rise, compared with 65 percent last year (when executives reduced the rate of spending increases in the face of less-favorable industry conditions).
- 9 Application Markets** Consumer electronics and wireless handsets again topped the list of leading application markets. Reflecting growing expectations for a broad-based recovery, executives expressed optimism about a broader range of applications, with medical, automotive, industrial and power management registering notable gains as leading industry revenue growth drivers.
- 10 Capital Spending Increases** Nearly three-quarters (73 percent) of the respondents expect their company's semiconductor-related capital spending (for equipment and software) to increase over the next fiscal year, compared with 51 percent who were forecasting capital spending growth last year. Notably, the respondents who expect a spending increase of more than 10 percent has more than doubled, reaching 24 percent this year (versus 10 percent last year).
- 11 Technology Roadmap** Nearly half of the executives (45 percent) say production of 450mm wafers will have a more significant impact on the industry than production at a sub-20 nanometer technology node. This result marks a reversal of expectations in last year's survey, when only 27 percent expressed this view, indicating a belief that 450mm wafers are closer to becoming a reality.

PAGE CONTENT

- 13 Mobile Payments** Another application market generating tremendous enthusiasm among the semiconductor leaders is mobile payments, which 55 percent of respondents expect to become the predominant method of payment for most transactions within two years. Looking at payment technologies, 49 percent expect contactless card systems to be the most common method, compared with 36 percent for mobile banking and 30 percent for mobile wallets.
- 13 Future Geographic Growth** Reflecting slower economic growth in China as well as optimism that the U.S. economy is poised for recovery, the United States, at 50 percent, has replaced China (cited as the most promising market in last year's results) as the most important geography for semiconductor growth. China, at 46 percent, fell to second, followed by Europe (34 percent), Taiwan (32 percent) and Korea (30 percent).
- 14 Workforce** Reflecting their investments for an industry recovery, two-thirds of the surveyed executives plan to increase their company's headcount during the next fiscal year, compared with 48 percent last year. A fifth of the leaders say they plan to expand their workforces by more than 10 percent, nearly triple the number of respondents (8 percent) with similar growth plans last year.
- 14 Headcount** Executives also reported a notable shift in the locations where they plan to increase headcount. China remains the leading headcount growth market (59 percent this year, down from 70 percent in last year's results), but the United States was cited by more respondents this year (50 percent, versus 44 percent in 2011).
- 16 Mergers and Acquisitions** Semiconductor leaders' expectations about the rate of change in global industry M&A activity were similar to last year's results, with 66 percent calling for an increase in the number of transactions, compared with 62 percent. Fifty-five percent of the executives believe their organizations will complete at least one transaction, compared with 46 in last year's survey.

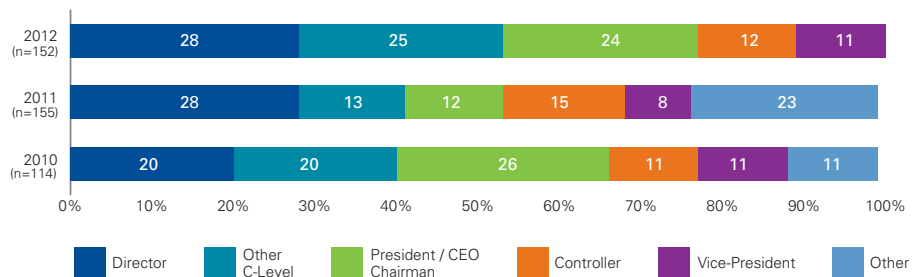
# Demographics and Methodology

A Web-based survey conducted by Forbes Insights on behalf of KPMG in September and October 2012 received responses from 152 senior executives. More than three-quarters (77 percent) of the respondents are C-level leaders or directors from the top global semiconductor companies. Half of the respondents represent companies with sales of over \$1 billion, and 14 percent report sales of \$10 billion or more.

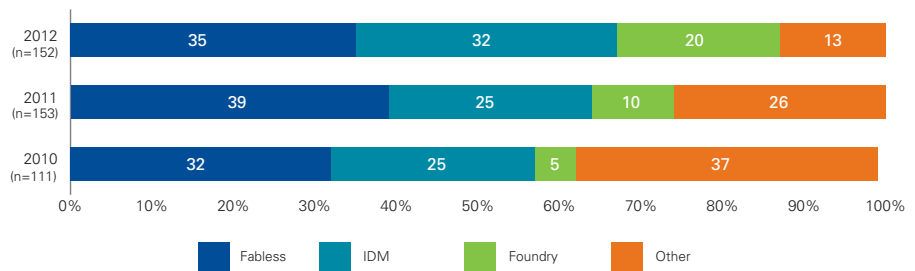
The majority (67 percent) represent integrated device manufacturers (IDMs) and fabless companies, 20 percent come from foundries, and 13 percent are associated with other categories.

## Company Profile

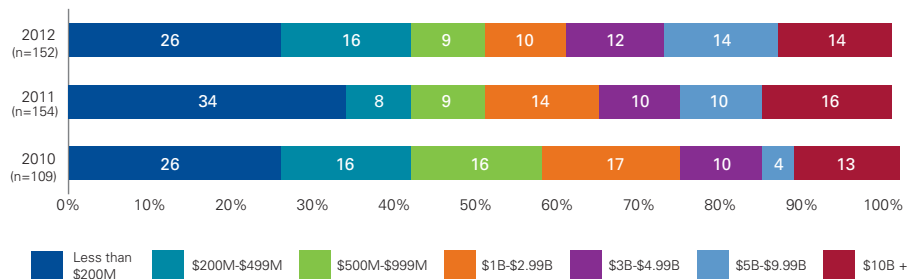
### Which of the following best describes your job title?



### Which of the following best describes your company?



### Which of the following best describes your company's annual revenue?



# Detailed Findings

## Revenue Growth

Up significantly from 2011, one-quarter expect their company's semiconductor revenue growth to increase >10% in the next fiscal year.

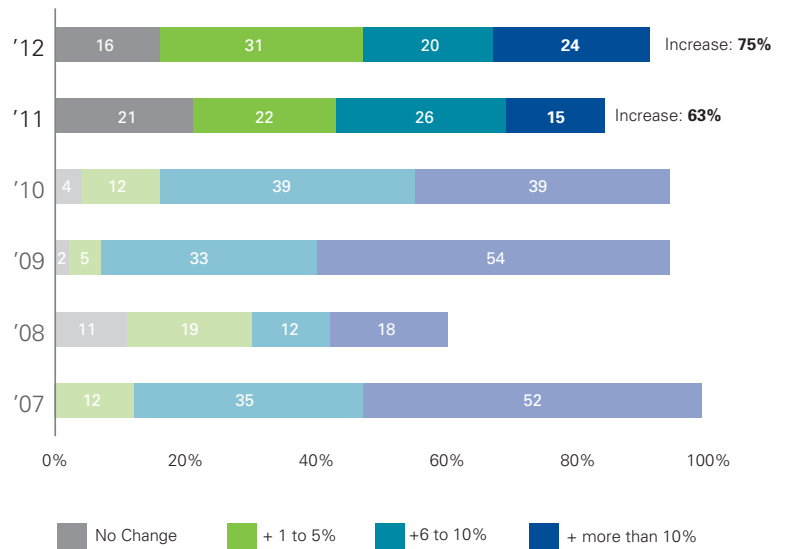
### What is your outlook for your company's semiconductor revenue growth in the next fiscal year?

Reflecting executives' belief that the worst of the down cycle is largely behind the industry, semiconductor executives expect their companies to enjoy revenue growth in the next fiscal year.

The percentage of executives expecting to see growth was 75 percent, a notable increase from the 63 percent of executives with similar expectations last year. Perhaps more tellingly, the executives forecasting a revenue increase of more than 10 percent reached 24 percent, compared with 15 percent in last year's results.

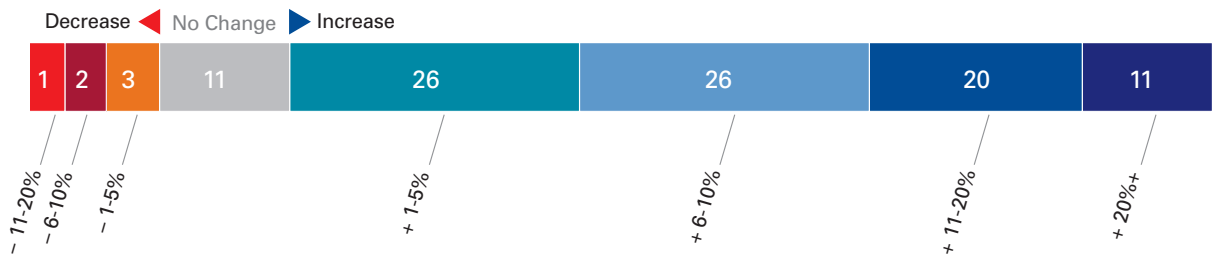
These expectations reflect significantly more optimism than was recorded in last year's results, and indicate their beliefs that the semiconductor industry is poised for a multiple-year recovery beginning most likely in the second half of 2013.

Similarly, the percent of executives calling for revenue declines fell from 16 percent in the 2011 survey to only 9 percent this year.



### Most say semiconductor revenue growth will increase over the next three years

#### What is your outlook for your company's semiconductor revenue growth in the next three years?



From a longer-term perspective, survey respondents expect the recovery to gain momentum and expand over the next three years. Eighty-three percent of the executives believe semiconductor revenue growth will increase, compared with only 6 percent who expect revenue to decline.  
*(This question wasn't asked in last year's survey.)*

## Profitability

Up significantly, many continue to say the annual profitability is expected to increase over the next year, over 1 in 5 see >10% gains.

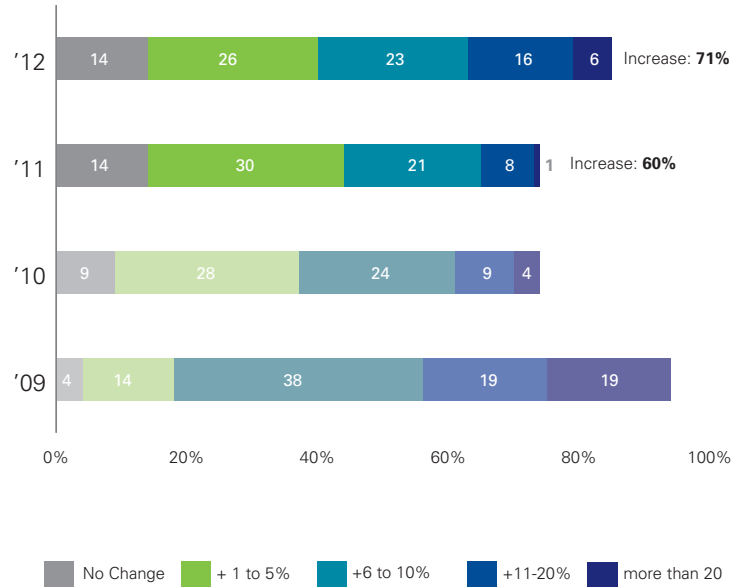
### What is your estimate for the change in the annual profitability of the global semiconductor industry over the next year?

As with their optimistic expectations for revenue growth, semiconductor executives are forecasting significant increases in profitability as the industry recovers from its 2012 downturn. Nearly three-quarters (71 percent) are forecasting profitability growth, compared with 60 percent last year.

The number of executives calling for profitability to increase between 11 percent and 20 percent doubled to 16 percent, and the percentage of respondents forecasting growth by more than 20 percent was 6 percent, compared with only 1 percent last year.

Expectations for a decline in industry profitability fell from 26 percent last year to 16 percent this year.

Looking at a three-year horizon, 80 percent of respondents call for industry profitability, compared with 75 percent in last year's survey.





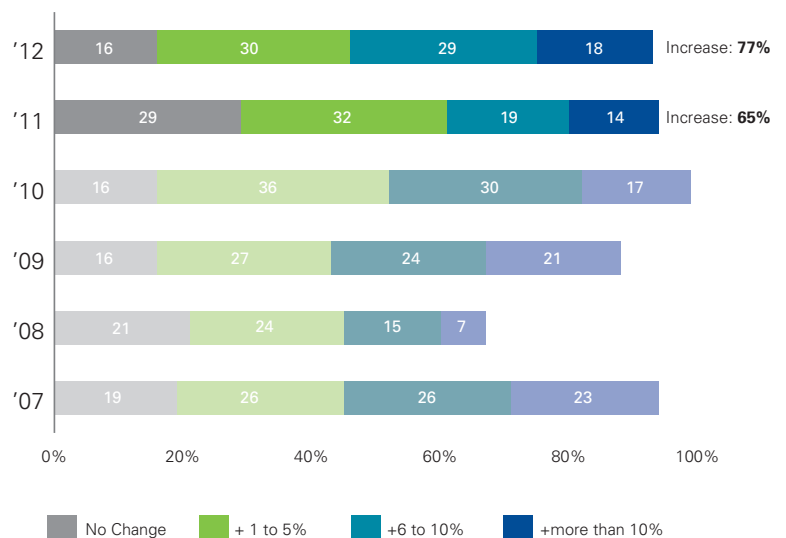
## R&D Spending to Increase

Many also expect semiconductor-related R&D spending to increase in the next fiscal year vs. the current year, up significantly from 2011.

### What is your expectation for the change in semiconductor R&D spending by your company for the next fiscal year over the current year?

Optimistic about future growth trends, semiconductor executives are forecasting notable increases in their companies' R&D investments. More than three-quarters (77 percent) are calling for R&D spending to rise, compared with 65 percent last year (when executives reduced spending increases in the face of less-favorable industry conditions). Twenty-nine percent expect R&D investment to rise by 6 percent to 10 percent (compared with 19 percent), and 18 percent expect increases by more than 10 percent (compared with 14 percent).

Six percent of the respondents expect their company's R&D spending to decrease, compared with 7 percent last year.



# Detailed Findings

## Application Markets

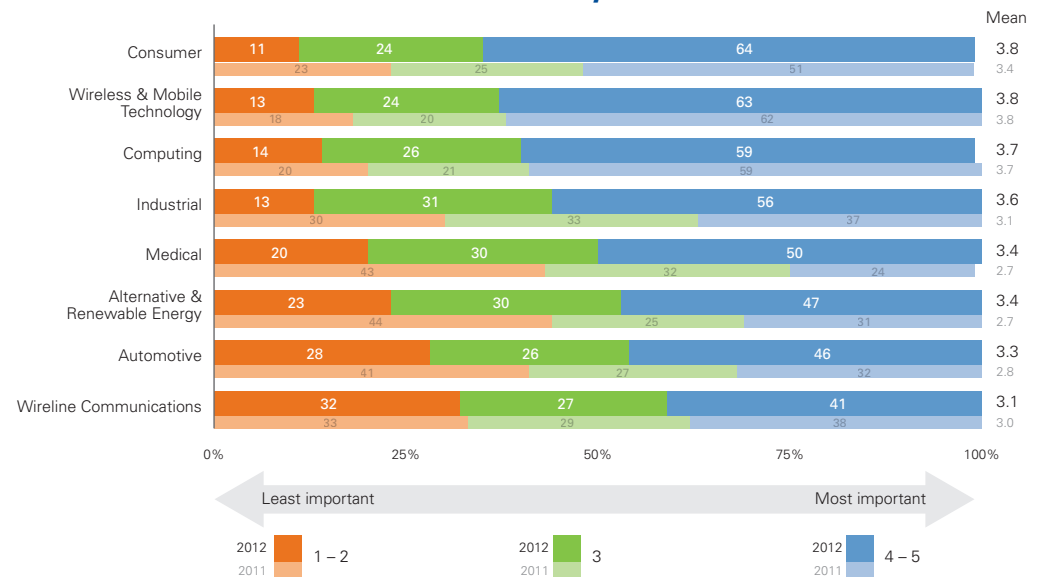
Consumer electronics and wireless handsets/mobile technologies remain the most important semiconductor revenue drivers over the next year, and over the next three years; additional application markets also driving revenue growth.

Reflecting recent surveys, consumer electronics and wireless handsets topped the list of leading drivers of semiconductor revenue over the next year. Perhaps reflecting the growing importance of home entertainment, tablets and bring-your-own-device approaches in enterprise settings, consumer electronics (64 percent) was virtually tied with mobile technology (63 percent) as the leading revenue driver. While expectations for wireless were virtually the same, the forecast for consumer as a driver represented a notable increase from the 51 percent of executives who cited it last year.

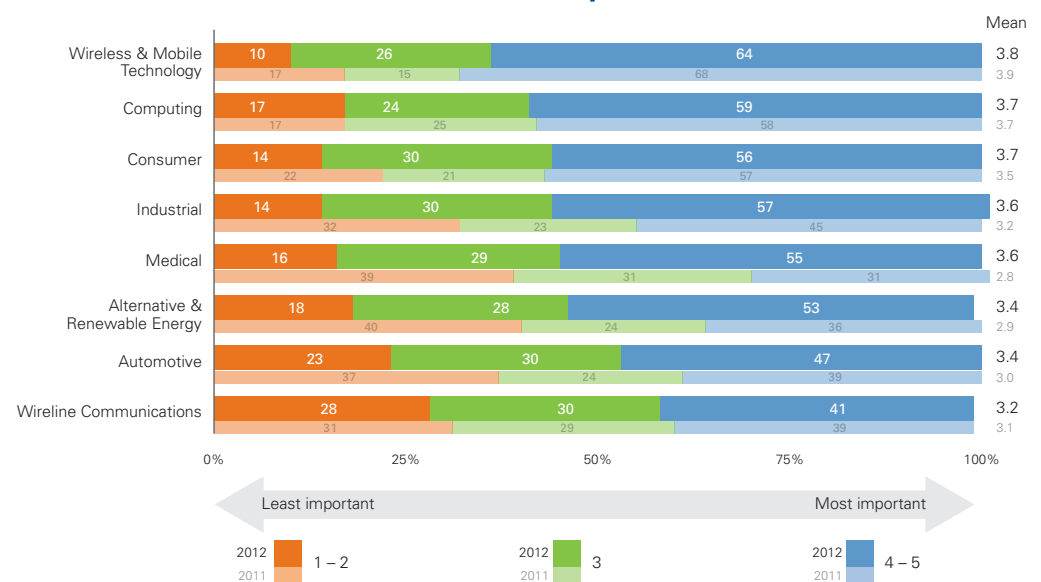
Reflecting growing expectations for a broad-based recovery, executives expressed optimism about a wider range of applications than we have seen in previous surveys. Medical, automotive, industrial and power management registered notable gains as leading industry revenue growth drivers.

Looking over the next three years, mobile technology remains the leading revenue growth driver, followed by computing, consumer, industrial, medical and power management.

### How important are each of the following application markets in driving your company's semiconductor revenue stream over the next fiscal year?



### How important are each of the following application markets in driving your company's semiconductor revenue stream over the next three years?



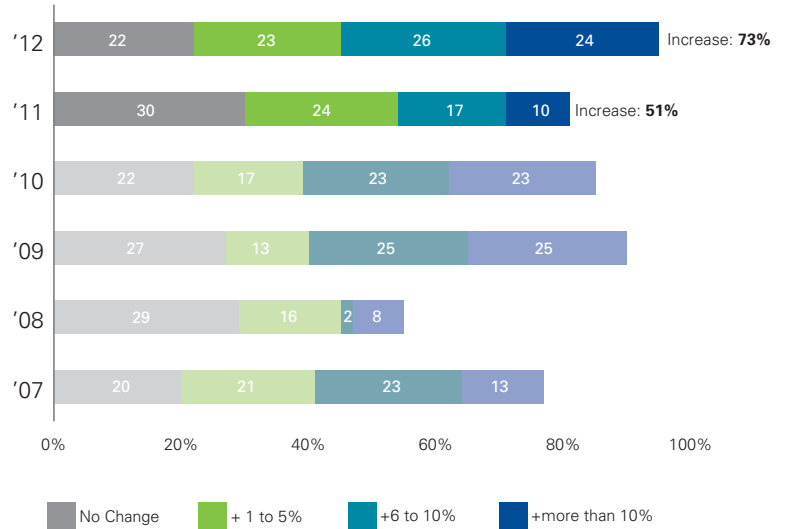
# Detailed Findings

## Capital Spending Increases

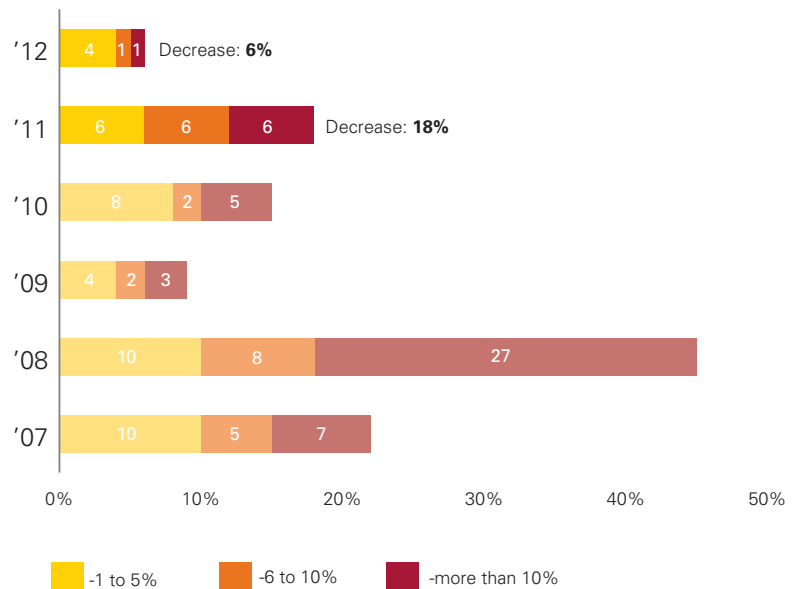
Up significantly, one-quarter expect their company's semiconductor-related capital spending to increase >10% for the next fiscal year.

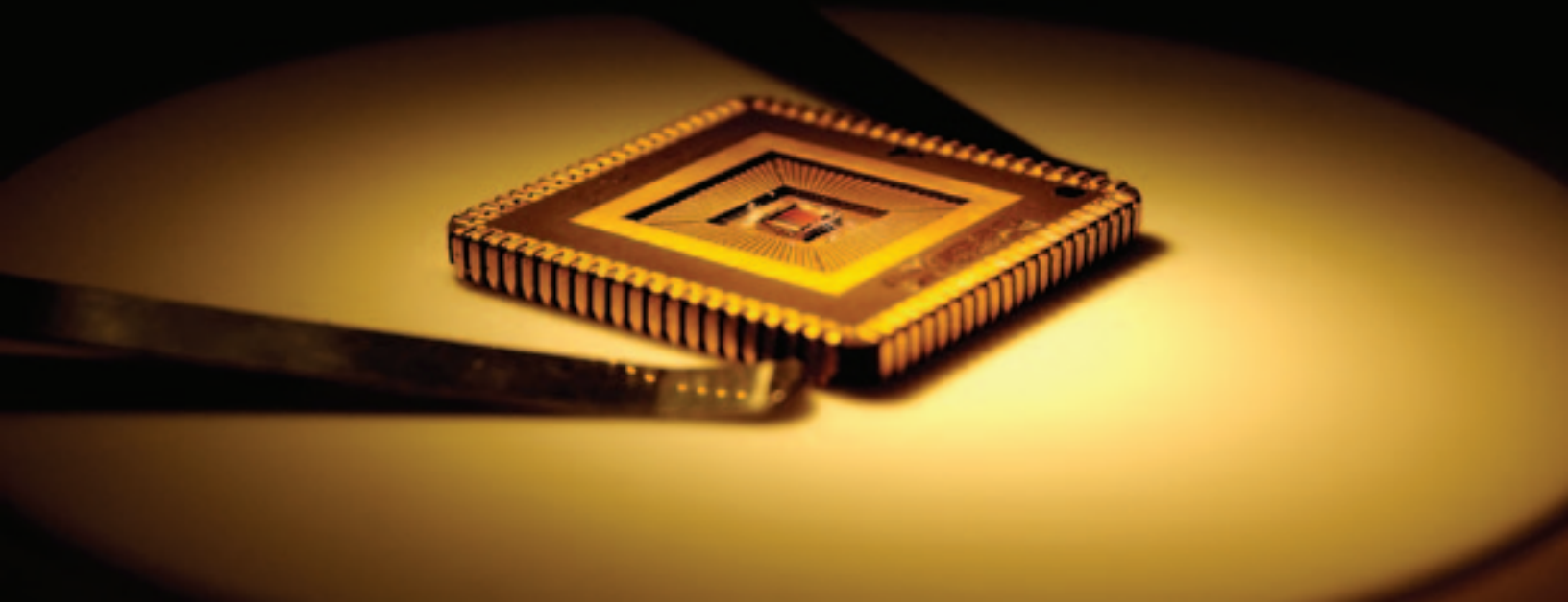
### What is your outlook for semiconductor-related capital spending by your company (both equipment and software) for the next fiscal year compared with your company's current year spending?

Nearly three-quarters (73 percent) of the respondents expect their company's semiconductor-related capital spending (for equipment and software) to increase over the next fiscal year, compared with 51 percent who were forecasting capital spending growth last year. Notably, the respondents who expect a spending increase of more than 10 percent has more than doubled, reaching 24 percent this year (versus 10 percent last year).



The percentage of executives expecting capital spending cuts has fallen by two-thirds to 6 percent, compared with 18 percent last year. Twenty-two percent of the respondents don't expect capital spending to change, compared with 30 percent last year.





## Technology Roadmap

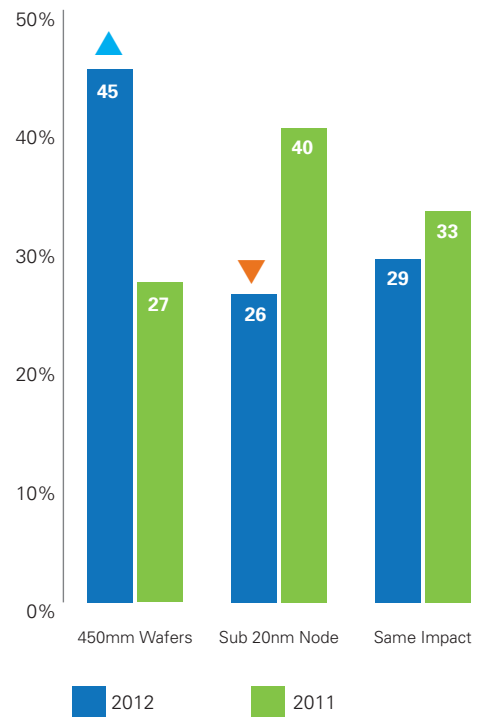
Contrary to 2011, nearly half now say 450mm wafer production will have more impact on the industry than production at a sub 20nm technology node.

### Thinking about the future of production technology, which will have a greater impact on the semiconductor industry, production at a sub 20nm node or the production of 450 mm wafers?

Looking at the industry's technology roadmap, nearly half of the executives (45 percent) say production of 450mm wafers will have a more significant impact on the industry than production at a sub-20 nanometer technology node. This result marks a reversal of expectations in last year's survey, when only 27 percent expressed this view.

We see a similar shift in the percentage of executives who cited production at a sub-20 nanometer technology node as more significant (26 percent in 2012, compared with 40 percent in 2011), reflecting a significant increase in R&D investment as companies proceed down the R&D roadmap.

The majority of executives (54 percent) continue to believe the transition to 450mm wafers will take place between 2013 and 2016, with 43 percent expecting the transition in 2015 or 2016.





# Detailed Findings

## Mobile Payments

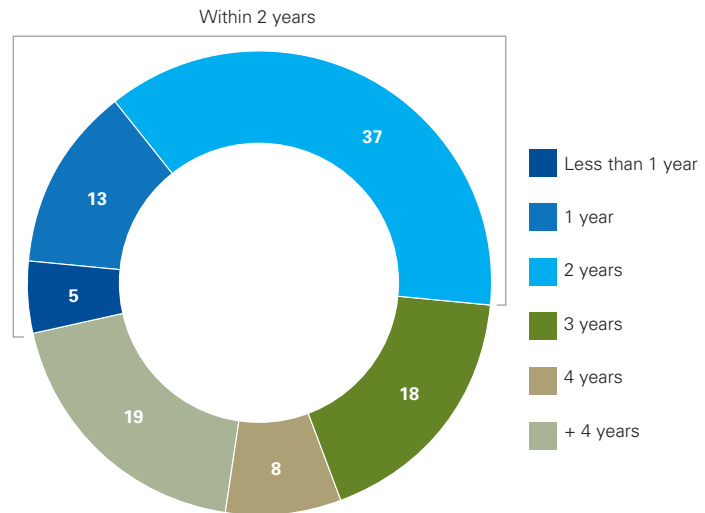
Over half say mobile payments will become the predominant method of payment within two years.

### When will mobile payments become the predominant method of payment and accepted by consumers?

Another application market generating tremendous enthusiasm among the semiconductor leaders is mobile payments, which 55 percent of respondents expect to become the predominant method of payment for most transactions within two years.

Looking at mobile payment technologies, 49 percent expect contactless card systems to offer the most common approach, compared with 36 percent for mobile banking and 30 percent for mobile wallets.

Sixty percent believe near field communication (32 percent) and RFID (28 percent) are expected to provide the best platform for mobile payments.



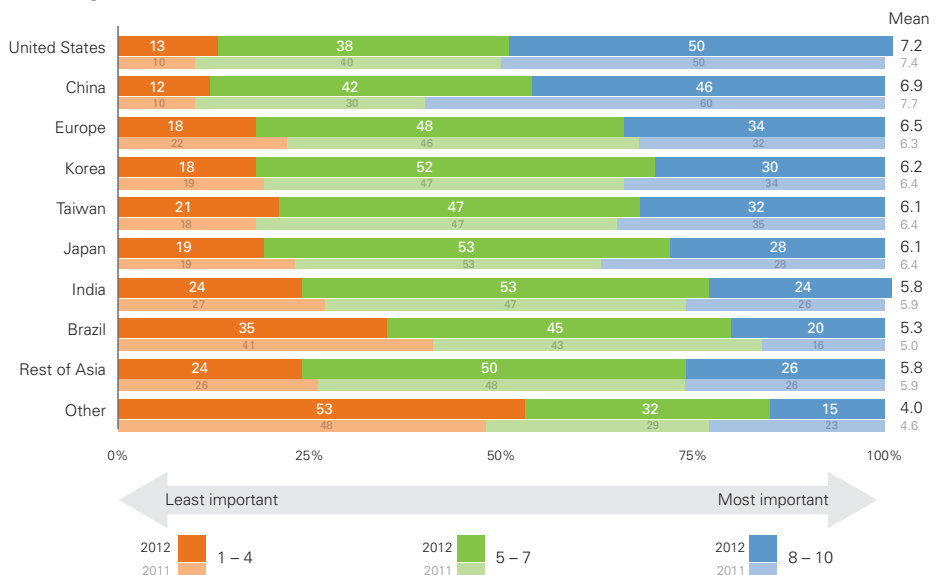
## Future Geographic Growth

Half continue to say the U.S. is the most important area for semiconductor revenue growth three years from today, China second.

### Please rate the importance of the following geographic areas in terms of semiconductor revenue growth for your company three (3) years from today.

Looking at promising geographic markets, semiconductor executives indicated a shift in the regional markets from where they expect to see the strongest revenue growth within three years.

Reflecting slower economic growth in China as well as optimism that the U.S. economy may be poised for recovery, the United States, at 50 percent, has replaced China (cited as the most promising market in last year's results) as the most important geography for semiconductor industry growth. China, at 46 percent, fell to second, followed by Europe (34 percent), Taiwan (32 percent) and Korea (30 percent).



# Detailed Findings

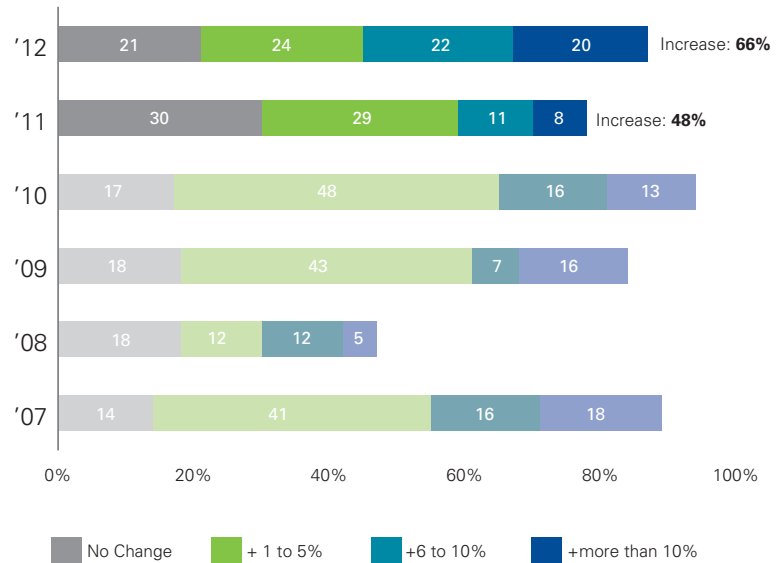
## Workforce

Up significantly, 1 in 5 expect their company's global semiconductor workforce to expand > 10% during the next fiscal year.

### During the next fiscal year do you expect your company's global semiconductor workforce to expand or contract?

Reflecting their investments for an industry recovery, two-thirds of the surveyed executives plan to increase their companies' headcount during the next fiscal year, compared with 48 percent last year. Perhaps more significantly, a fifth of the leaders say they plan to expand their workforces by more than 10 percent, nearly triple the number of respondents (8 percent) with similar growth plans last year.

Thirteen percent of the respondents believe their company will reduce headcount during the next year, compared with 22 percent in last year's results.

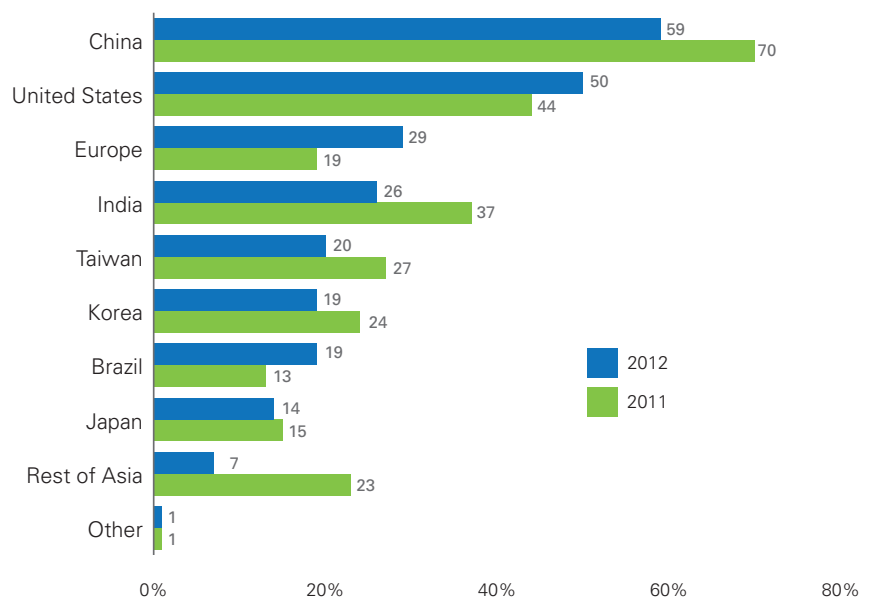


## Headcount

China and the U.S. continue to be seen as top markets for headcount growth; Increased growth seen in the U.S. while growth in China is declining.

### Please indicate the top three (3) markets for headcount growth in the semiconductor industry during the next 12 months.

China remains the leading headcount growth market (59 percent this year, down from 70 percent in last year's results), but the United States was cited by more respondents (50 percent, versus 44 percent in 2011). Europe, at 29 percent, was listed as the third-leading market for headcount increases.





# Detailed Findings

## Mergers and Acquisitions

Similar to 2011, two-thirds say the expected rate of change in global M&A deals will increase.

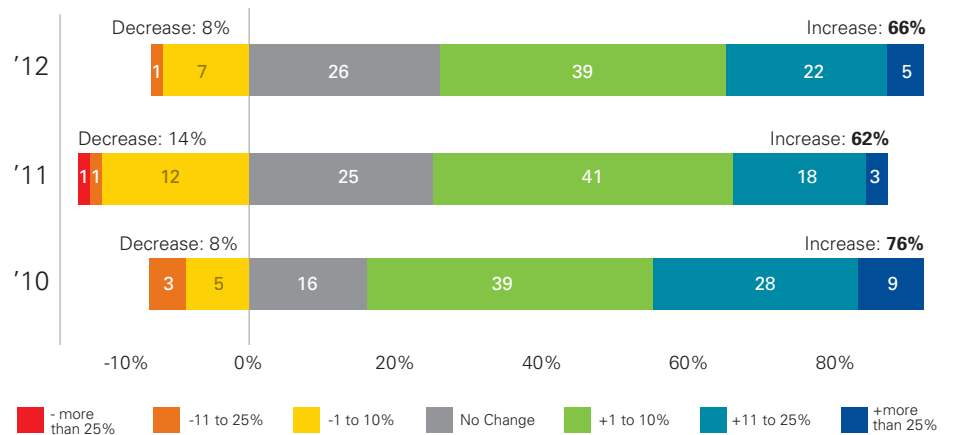
**What is your prediction for the expected rate of change in the number of global M&A deals in the next fiscal year (2013), based on the previous three-year average?**

**What is the expected change in the rate of M&A activity (%)?**

Semiconductor leaders' expectations about the rate of change in global industry M&A activity were similar to last year's results, with 66 percent calling for an increase in the number of transactions, compared with 62 percent.

Asked about their company's plans for acquisitions, 55 percent of the executives believe their organizations will complete at least one transaction, compared with 46 in last year's survey. The number of respondents with no plans to acquire any assets fell to 45 percent this year, compared with 55 percent last year.

Looking at divestitures, 55 percent of the respondents say they have no plans to divest business units or intellectual property assets in 2013.



## About the authors

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**Gary Matuszak** is the global chair of KPMG's Technology, Media & Telecommunications industries, and is the chair of KPMG's Global Technology Innovation Center. Mr. Matuszak works with global technology companies ranging from the Fortune 500 to pre-IPO start-ups, and represents KPMG in a number of organizations affecting the industry.

Mr. Matuszak has influenced the development of key industry positions on several issues that impact the technology sector. He is a frequent speaker on technology industry trends, including Technology innovation, China's emerging role, Cloud provider and user perspectives, and industry outlooks. He has devoted virtually his entire career to serving the technology industry.

**Ronald Steger** began his career with KPMG in 1976, and was admitted into the partnership in 1986. Mr. Steger is a U.S. SEC Reviewing Partner, one of the firm's senior-most technical positions. Mr. Steger has extensive experience serving clients in the technology industry. He currently serves as the leader of KPMG's Global Semiconductor Practice, and is the former National Industry Director for Electronics.

Mr. Steger presents to various trade associations and client conferences related to the Global Semiconductor Industry, and is a frequent speaker and panelist with KPMG's Audit Committee Institute. He has served in KPMG's offices in New York, Munich, Silicon Valley, Austin and Orange County.

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## About KPMG

KPMG is a global network of professional firms providing Audit, Tax and Advisory services. We operate in 152 countries and have 145,000 people working in member firms around the world. The independent member firms of the KPMG network are affiliated with KPMG International Cooperative (KPMG International), a Swiss entity. Each KPMG firm is a legally distinct and separate entity and describes itself as such.

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