

# *Manufacturing Barometer*

Business outlook report  
April 2015

**Special topic:**  
*Robotics systems*



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# *Quarterly highlights*





### **Chief quarterly findings**

While optimism about the US economy rose 8 points to a high 76 percent, and an uptick was seen for the world economy's moderate levels of optimism, own-company revenue forecasts for the next 12 months softened, dropping from 5.8 percent last quarter to a current 5.1 percent.

A perspective pullback in international sales contribution from 30 percent to 27 percent among those selling abroad appears to be the major problem – which is linked to the stronger dollar and greater foreign competition (two headwinds on the rise).

Quarterly international sales were off slightly, and gross margins were flat, with reduction in price flexibility. On the positive side, plans for major new investments were noted by more than half the panelists, although at lower levels of spending. Operational spending also continued strongly, led by new product/service introductions, IT, R&D, and business acquisitions. M&A activity was also notably higher, with a rise in sales of all or part of their businesses. But geographic expansion and new facilities abroad were lower in the face of the strong dollar and slower level of contribution.

Finally, new hiring looks tepid again. Concern about lack of qualified workers is on the rise, as is pressure for increased wages among current employees.

### **Optimism about the US and world economies increases**

Optimism about the US economy's 12-month prospects among the industrial manufacturing panelists rose 8 points to 76 percent from the prior quarter's 68 percent, reflecting continued strength, above the 71 percent a year ago. Only 3 percent were pessimistic, and 21 percent uncertain. Currently, 85 percent view the US economy as growing in 1Q 2015, 6 points higher than a year ago (79 percent).

An uptick was also seen in optimism about the world economy among US-based industrial manufacturers who market abroad, rising 4 points to the 42 percent level – and it is now similar to the 41 percent from a year ago. The prevailing view of the world economy's prospects over the next 12 months is split between uncertainty (45 percent) and optimism (42 percent). Thirteen percent are pessimistic (up 6 points). In 1Q 2015, 38 percent viewed the world economy as growing; 49 percent viewed it as unchanged, and 13 percent as declining.

### **Own company revenue growth softens a bit**

Own company revenue growth forecasts for the next 12 months dropped to a still moderate high 5.1 percent, off from its high of 5.8 percent last quarter and 5.3 percent a year ago. A dropoff in projected international sales contribution to total revenues appears to be a potential concern – linked to the stronger dollar and greater foreign competition (both potential barriers on the rise). Looking ahead, 83 percent expect positive revenue growth over the next 12 months– with 10 percent expecting double-digit growth (off 7 points), and 73 percent forecasting single digit growth. Only 2 percent forecast negative growth and 3 percent zero growth. However, a larger than usual 12 percent were not reported, indicating some uncertainty about revenues in the year ahead. We also note that final calendar year growth for 2014 was 5.2 percent, or slightly higher than the 5.1 percent next 12-month forecasts – further indication of a slight revenue falloff.

### **International sales contribution decrease**

The projected contribution of international sales to total revenues among panelists selling abroad dropped off notably from 30 percent to 27 percent for the next 12 months. A year ago, it was an even higher 33 percent contribution. It appears as though the stronger dollar and greater foreign competition played a major role in this projected slowdown. (Note that we are studying the impact of the stronger dollar for next quarter's report). In 1Q 2015, international sales were off slightly: up for 19 percent, down for 23 percent, and about the same for 58 percent selling abroad.

### **Headwinds to growth include stronger dollar impact**

The leading three potential barriers to growth over the next 12 months are lack of qualified workers (35 percent, up 2 points), lack of demand, a relatively low 29 percent (off 6 points), and legislative/regulatory pressures, a relatively low 33 percent (up 1 point). Concern about oil/energy prices remained a low 26 percent, with the price of oil below \$50 a barrel. And taxation policies dropped off 3 points to 24 percent.

But on the rise were two potential barriers to growth linked to the stronger US dollar: concern about monetary exchange rate rose 6 points to 21 percent; and competition from foreign markets rose 2 points to 17 percent. Also on the rise was ongoing worker concern: pressure for increased wages, up 7 points to 17 percent.



### **Special analysis of dollar-related barrier segment**

Thirty-five percent of panelists were concerned about the stronger dollar exchange rate (21 percent) or greater foreign competition (17 percent). Own-company revenue forecasts for this segment is 4.8 percent, below the 5.1 percent for all panelists. Their recent 1Q 2015 international sales reflect downward pressures: 24 percent increased but 29 percent decreased, a net 5 percent negative. Overall contribution from international sales to total revenues over the next 12 months is an average 27 percent (below last quarter's 30 percent). Yet they remain above-average in plans for expansion to markets abroad (30 percent) and new manufacturing, production, or distribution facilities abroad (20 percent). But 15 percent are cutting back on their international activities.

### **New hiring plans less bullish**

After an uptick in new hiring plans last quarter, those planning to hire over the next 12 months dropped off 8 points to 52 percent, and composite workforce hiring dropped off from 1.1 percent to a more typical 0.5 percent. Current plans are similar to a year ago when 56 percent were planning to hire a composite 0.4 percent to their workforces.

Note that skilled labor remains the most sought-after employee type, at the 33 percent level (off 2 points).

On the positive side, we see increased focus on lack of qualified workers, 35 percent (up from 28 percent a year ago). There is additional focus on pressure for increased wages among current employees, 17 percent (up from 12 percent a year ago).

### **More CapEx spending but at lower levels**

Overall, 52 percent of US industrial manufacturers surveyed plan major new investments of capital over the next 12 months – up 9 points on a quarter-to-quarter basis, and 13 points higher than a year ago (39 percent). Yet they plan to spend less. Their mean investment as a percentage of total sales was a notably low 3.3 percent compared to a typically higher investment level a year ago of 5.4 percent.

On the positive side, more panelist companies (83 percent) plan to increase operational spending – up quarter-to-quarter and 8 points higher than the 75 percent a year ago. The leading areas of increased expenditures were higher than a year ago: new product or service introduction, 55 percent (11 points higher); and R&D, 40 percent (6 points higher). IT increased to 33 percent (but is 5 points lower). Business acquisitions were up 7 points to 28 percent. On the debit side, geographic expansion was off sharply from last quarter's high of 27 percent to 19 percent (2 points below a year ago).

More panelists are planning M&A activities over the next 12 months, 43 percent (up 10 points), most planning to purchase another business (29 percent), and 16 percent interested in selling part or all of their businesses (up 8 points). Expansion to new markets abroad dropped 3 points to 19 percent, and plans for new facilities dropped 6 points to 12 percent – indicating some concern about the strong dollar.

### **Gross margins lower**

Gross margins in 1Q2015 flattened, with costs up and less offsetting own-company price flexibility. Concern about profitability over the next 12 months remained consistent at 21 percent, similar on a quarter-to-quarter basis but lower than a year ago (28 percent).

A quarter-over-quarter comparison of key indicators shows the business outlook for the next 12 months and how the views of the panel have changed each quarter (see chart 1.1). The pages that follow provide a detailed look at each question for the past five quarterly surveys.



### **Robotics systems: A strong evolving market**

Overall, there is a moderately strong evolving market for robotics systems among Manufacturing Barometer panelists. Currently, 48 percent are either heavily involved (17 percent) or moderately involved (31 percent). Overall, 44 percent believe it is at least moderately important to their company's business and profit growth over the next two to three years.

Planned acquisition of robotics systems over the next two to three years was cited by a maximum of 58 percent— with nearly one-third (31 percent) planning to acquire a moderate amount (25 percent) or many more robotics systems (only 6 percent). A larger number plan to acquire a limited number of robotics systems (27 percent).

On the barriers side, 69 percent agree that price and return on investment for robotics systems must be notably reduced before they can consider more installations (49 percent strongly agree). In contrast, only 44 percent agree that quality of robotics must be improved before they can consider more installations (but only 13 percent strongly). Price and ROI appear as the chief barrier to robotics systems growth in the industrial manufacturing market.

Interestingly, the panelists agree that robotics will both create new job opportunities and replace workers and reduce their overall workforce.



**Chart 1.1 Key indicators for the business outlook**

A quarter-over-quarter comparison of the survey's key indicators shows how the 12-month outlook has changed each quarter. The change column indicates the movement of opinion of those surveyed over the past two quarters.

**Business outlook, next 12 months among industrial manufacturers**

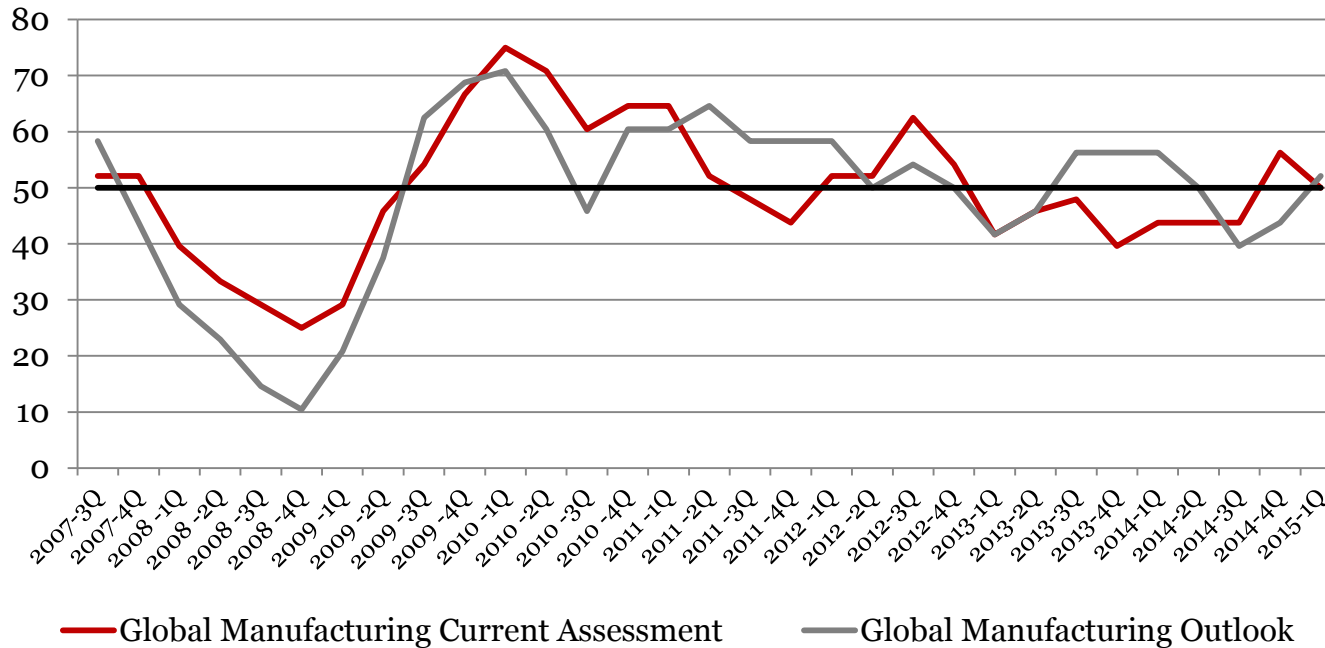
	2014				2015	Change	Page
	1Q'14	2Q'14	3Q'14	4Q'14	1Q'15	4Q'14-1Q'15	
Optimistic about US economy	71%	65%	57%	68%	76%	↑	11
Optimistic about world economy	41%	38%	30%	38%	42%	↑	12
Expect positive revenue growth	82%	77%	86%	85%	83%	=	20
Average growth rate expected	5.3%	5.2%	5.6%	5.8%	5.1%	↓	20
Planning major new investments	39%	52%	36%	43%	52%	↑	22
New investments as a % of sales	5.4%	5.7%	5.7%	3.3%	3.3%	=	22
Planning to hire	56%	48%	52%	60%	52%	↓	21
New workers as a % of workforce (net)	0.4%	0.5%	0.4%	1.1%	0.5%	↓	21
<b>Expected barriers to growth:</b>							
• Lack of qualified workers	28%	25%	26%	33%	35%	=	23
• Legislative/regulatory pressures	38%	47%	59%	32%	33%	=	23
• Lack of demand	44%	42%	43%	35%	29%	↓	23
• Oil/energy prices	26%	28%	22%	22%	26%	↑	23
• Taxation policies	23%	25%	31%	27%	24%	↓	23
• Decreasing profitability	28%	27%	22%	20%	21%	=	23
• Monetary exchange rate	18%	15%	14%	15%	21%	↑	23
• Competition from foreign markets	25%	28%	21%	15%	17%	=	23
• Pressure for increased wages	12%	7%	7%	10%	17%	↑	23
• Capital constraints	28%	17%	16%	12%	14%	=	23
• Higher interest rates	8%	3%	14%	7%	10%	↑	23



The manufacturing outlook improved sharply relative to fourth quarter results, while the current assessment deteriorated slightly. As both indices are calculated using a four-quarter moving average, these results mask some growing areas of concern relative to the prior quarter. In fact, the non-smoothed outlook *Barometer* index dropped to 66 in 1Q15 from 83 the prior quarter while the current assessment fell to 41.7 from 66.7.

While the overall indices have been weak, executives are actually highly optimistic about the current condition and outlook for the US economy over the next 12 months. Both of these US survey readings achieved the highest levels in five years. Meanwhile the outlook for the global economy continued to gain momentum, improving for the third straight quarter.

Many outlook index constituents improved relative to the prior quarter. A greater percentage of companies plan to raise capital investment and/or increase operational spending. On the other hand, company revenue expectations have declined, likely due to the impact of foreign currency. Companies appear to be more cautious on pricing and margins, which have dropped below post-recession averages. Sentiment regarding hiring plans has fluctuated over the last few quarters even as overall employment conditions have stabilized or improved.







The broad sense of optimism regarding overall economic conditions and improvements in global demand was offset by concerns about pricing and margins and the potential impact of currency on international revenues. The strength of the US dollar has had a strong impact on the outlook for US manufacturers. Foreign currency translation can have an immediate impact on revenues and free cash flow, as local currency is converted into fewer dollars. Manufacturers are also reporting a weaker pricing environment and an inability to pass through costs, putting margins at risk.

On the other hand, internationally, European PMI is indicating stronger growth and concerns regarding growth rates in Asia have been softened. So the strong dollar has been a mixed blessing for US manufacturers, stimulating global demand and improving the overall economic outlook, but at the expense of short-term US profits. In other words, US exporters may be paying the price for a global stimulus package.

### ***Background/methodology***

PwC has surveyed global manufacturing executives since 2003 with the results published in our *Manufacturing Barometer* publication. The responses to these survey questions have been used to measure the sentiment of manufacturers by creating current assessment and outlook indices. The Global Manufacturing Current Assessment Index measures current trends in pricing, margins, employment, and capital expenditures, while the Global Manufacturing Outlook Index measures expectations for revenue, employment, operational spending, and capital expenditures. These results are calculated as a four-quarter moving average of diffusion indices which measure the degree to which their equal-weighted components move in the same direction at the same time. The indices are scaled between 1 and 100 with above 50 indicating more positive sentiment and below 50 indicating more negative sentiment.

# *Economic views*





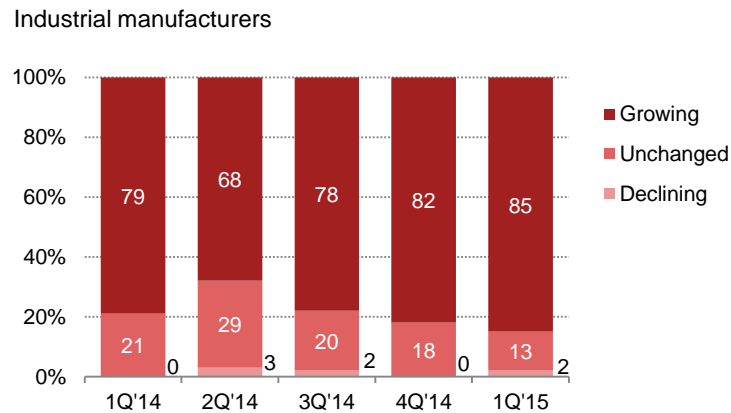
**Which best describes your view of the US economy this quarter?**

In first-quarter 2015, 85 percent of US industrial manufacturers surveyed believed the US economy was growing, up 3 points from the prior quarter's 82 percent. Two percent believed it was declining, and 13 percent saw no change from fourth-quarter 2014.

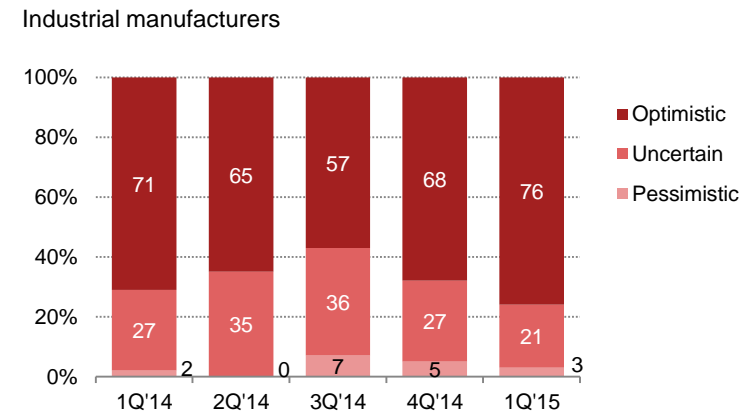
**Looking at the next 12 months, how do you feel about the prospects for the US economy?**

Looking ahead, 76 percent of respondents expressed optimism about the 12-month outlook for the US economy, up 8 points from the prior quarter's 68 percent. Three percent were pessimistic (off 2 points), while 21 percent were uncertain. A year ago, 71 percent were optimistic, 5 points lower.

**Chart 2.1 View of the US economy, this quarter**



**Chart 2.2 View of the US economy, next 12 months**



Note: In 1Q 2015 total respondents = 58

## View of the world economy, this quarter



## View of the world economy, next 12 months

### Which best describes your view of the world economy this quarter (international marketers only)?

In first-quarter 2015, 38 percent of the panelists marketing abroad viewed the world economy as growing, an increase of 9 points from the prior quarter's 29 percent. Thirteen percent believed it was declining (up 6 points from the prior quarter). Forty-nine percent said they saw no change.

### Looking at the next 12 months, how do you feel about the prospects for the world economy (international marketers only)?

Looking ahead, 42 percent of US-based industrial manufacturers who market abroad are optimistic about the prospects for the world economy over the next 12 months, up 4 points from the prior quarter's 38 percent. Thirteen percent are pessimistic (up 6 points), while 45 percent are uncertain. A year ago, 41 percent were optimistic, a similar level.

Chart 2.3 View of the world economy, this quarter

Industrial manufacturers

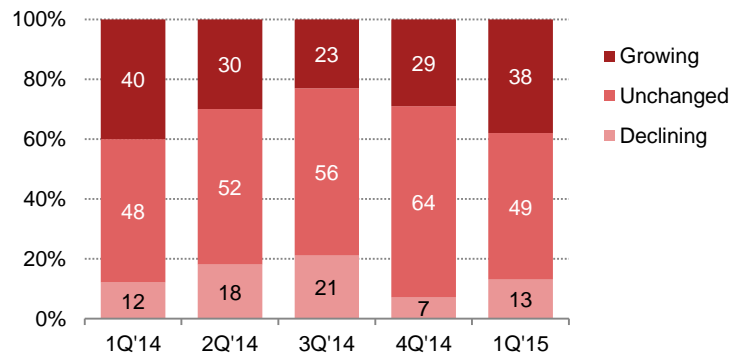
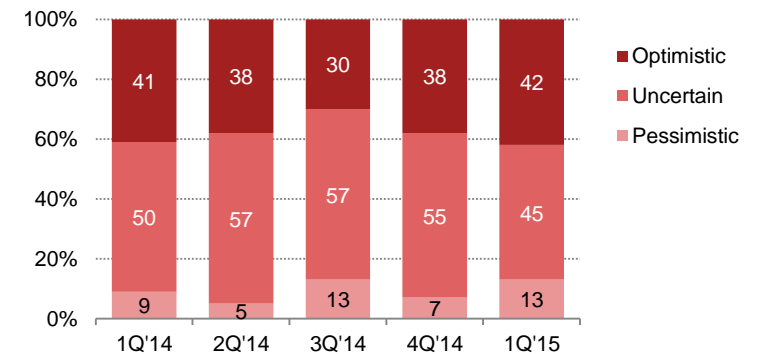


Chart 2.4 View of the world economy, next 12 months

Industrial manufacturers



Note: In 1Q 2015 total respondents = 53

# *Company performance*



## Company revenue growth, calendar year

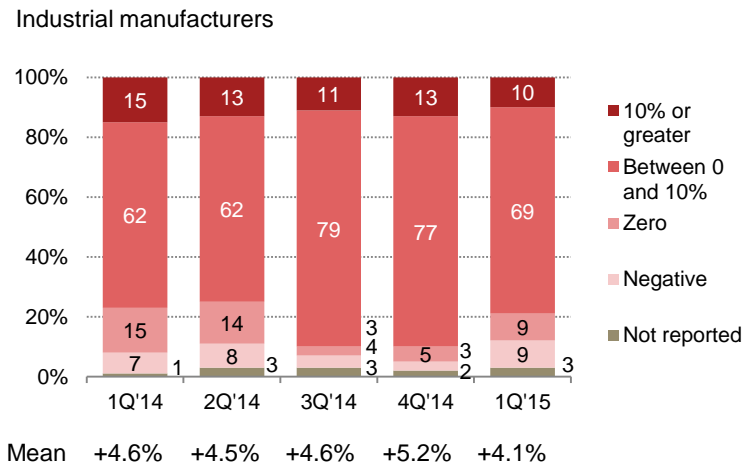


## Industry growth, calendar year

### What is your company's estimated revenue growth rate for the calendar year?

The composite average growth estimate for own-company revenue in the calendar year 2015 was at 4.1 percent, down sharply from the 5.2 percent in the fourth quarter for calendar year 2014. Seventy-nine percent of respondents said they expect positive own-company growth, with 10 percent expecting double-digit growth and 69 percent anticipating single-digit growth. Nine percent were on the negative side, 9 percent expected zero growth, and 3 percent were not reported.

Chart 3.1 Company revenue growth, calendar year

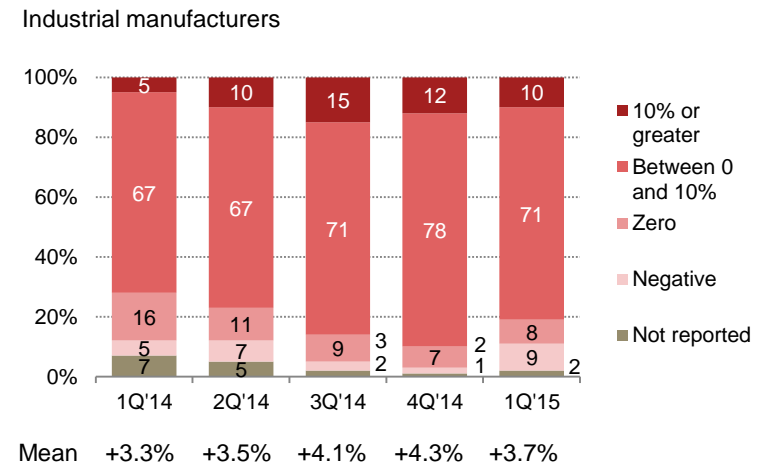


Note: In 1Q 2015 total respondents = 58

### What is your industry's estimated growth rate for the calendar year?

Estimated industry growth rate for calendar-year 2015 was at 3.7 percent, well below the fourth quarter's 4.3 percent for calendar-year 2014 and the 3.3 percent a year ago. Eighty-one percent of panelists reported positive industry growth for 2015 (10 percent double-digit growth and 71 percent single-digit growth). Nine percent were on the negative side and 8 percent expected zero growth for this year. Two percent was not reported.

Chart 3.2 Industry growth, calendar year

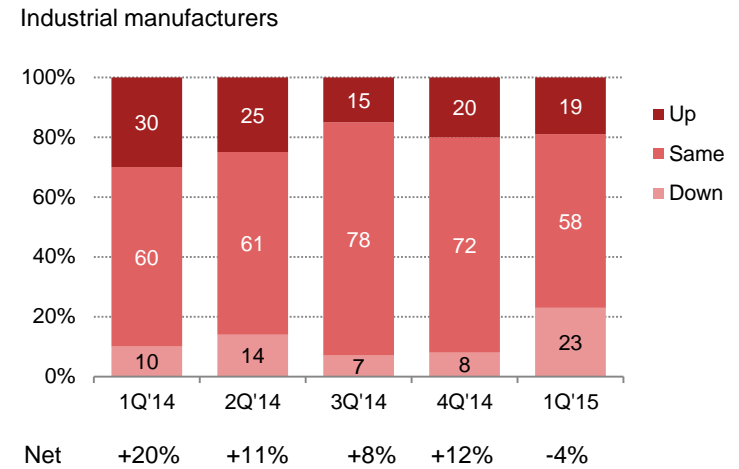




**Are international sales up, down, or the same compared with three months ago (international marketers only)?**

US-based industrial manufacturers that sell abroad reported slightly negative movement in international revenue in first-quarter 2015, with 19 percent reporting an increase in sales (off 1 point), and 23 percent reporting a decrease (up 15 points) or a net 4 percent decrease (16 points more than the previous quarter). The remaining 58 percent said sales stayed about the same quarter to quarter.

**Chart 3.3 International sales**



Note: In 1Q 2015 total respondents = 53

## Changes in gross margins

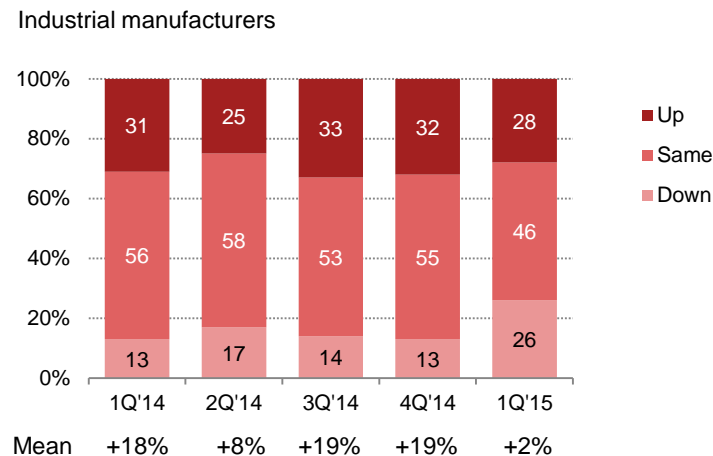


## Changes in costs and prices

### Are gross margins up, down, or the same compared with three months ago?

In first-quarter 2015, gross margins were flat. They were higher for 28 percent of panelists (off 4 points) and lower for 26 percent (up 13 points), for a net plus 2 percent, 17 points below the prior quarter's plus 19 percent. Forty-six percent stayed about the same.

Chart 3.4 Changes in gross margins

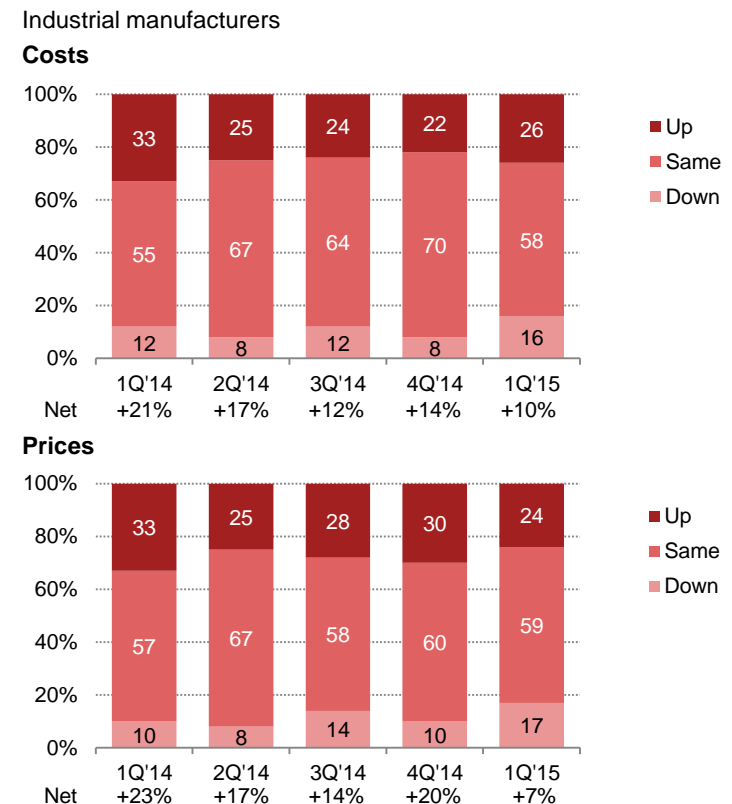


Note: In 1Q 2015 total respondents = 58

### Are costs up, down, or the same compared with three months ago? prices?

In first-quarter 2015, costs and prices were moderately higher. Twenty-six percent of US-based industrial manufacturers reported higher costs (up 4 points), and 16 percent reported lower costs (up 8 points), for a net plus 10 percent higher, 4 points below the prior quarter's 14 percent. On the price side, 24 percent raised prices (down 6 points) and 17 percent lowered them (up 7 points), for a net plus 7 percent reporting higher prices (13 points below the prior quarter) as price flexibility declined.

Chart 3.5 Changes in costs and prices





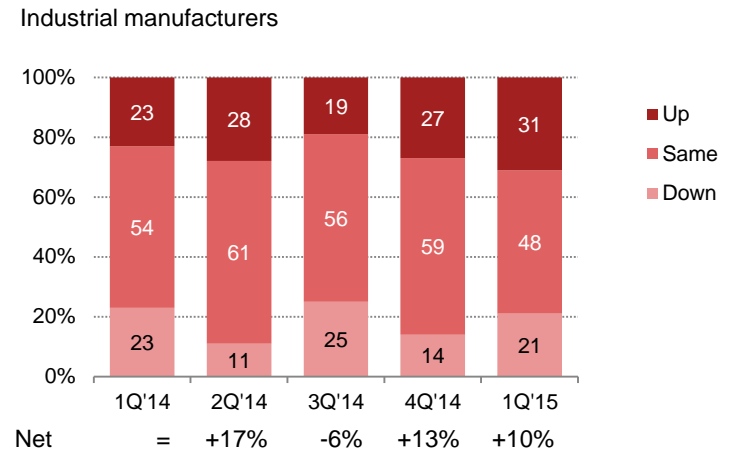
# Inventory movement



*Are finished inventories as a percentage of sales up, down, or the same compared with three months ago?*

Inventories as a percentage of sales grew for 31 percent of US-based industrial manufacturers in the first quarter, 4 points higher than the prior quarter. Levels were down for 21 percent (up 7 points), for a net 10 percent higher inventory growth in first-quarter 2015 but off slightly from the 13 percent higher inventories in fourth-quarter of 2014.

**Chart 3.6 Inventory movement**



Note: In 1Q 2015 total respondents = 58

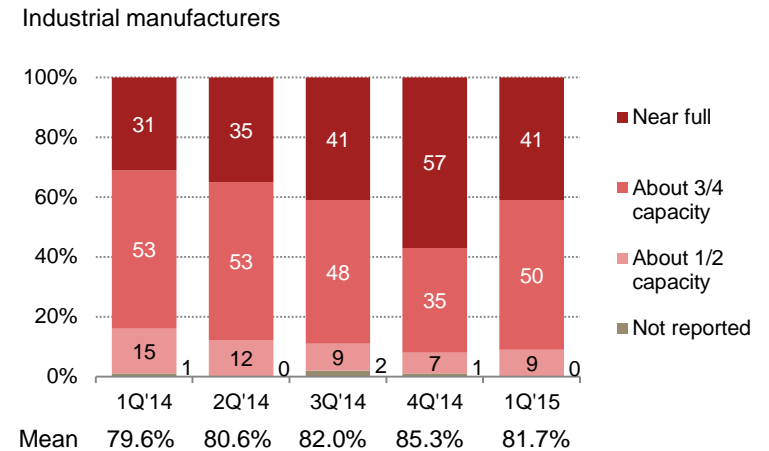
## Level of operating capacity



### What is your organization's current operating capacity?

Operating capacity is an estimate of the current level of permanent staffing and operations compared with what is needed for full-capacity output. In the first quarter, the mean dropped 4 points to 81.7 percent of capacity, below the previous quarter's high of 85.3 percent, with 41 percent of industrial manufacturers surveyed claiming to be at or near full capacity (off 16 points).

Chart 3.7 Level of operating capacity



Note: In 1Q 2015 total respondents = 58

# *Business outlook, next 12 months*



## Revenue growth, next 12 months

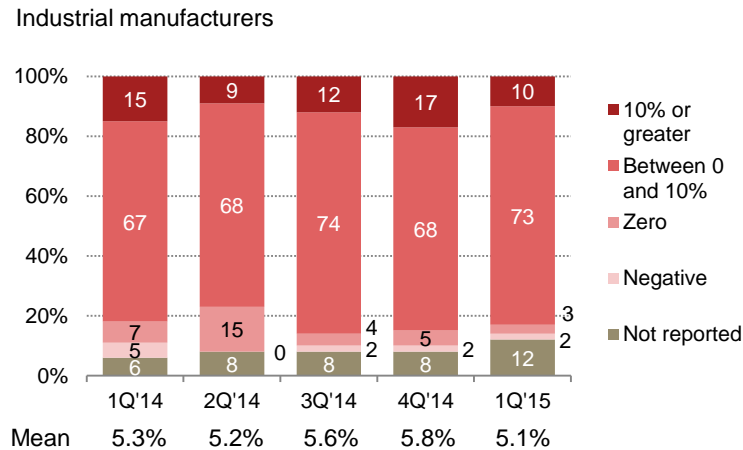


## International sales, next 12 months

### What is your organization's estimated revenue growth rate for the next 12 months?

The projected average revenue growth rate over the next 12 months among panelists decreased to 5.1 percent, below the prior quarter's 5.8 percent and a year ago (5.3 percent). Eighty-three percent expect positive revenue growth for their own companies, with 10 percent forecasting double-digit growth and 73 percent forecasting single-digit growth. Two percent forecast negative growth, 3 percent forecast zero growth, and 12 percent were not reported.

Chart 4.1 Revenue growth, next 12 months

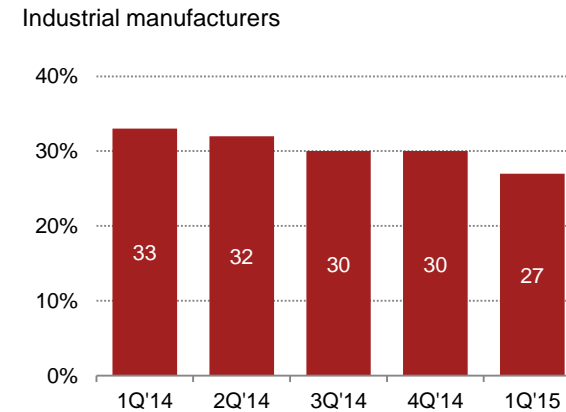


Note: In 1Q 2015 total respondents = 58

### What percentage of your business's total revenue over the next 12 months do you expect to be derived from international sales (international marketers only)?

Of respondents selling abroad, the projected contribution of international sales to total revenue over the next 12 months decreased to 27 percent, 3 points below the prior quarter, and 6 points below a year ago.

Chart 4.2 International sales, next 12 months



Note: In 1Q 2015 those marketing abroad = 53

## Percent planning to hire



## Percent planning to hire by type of employee

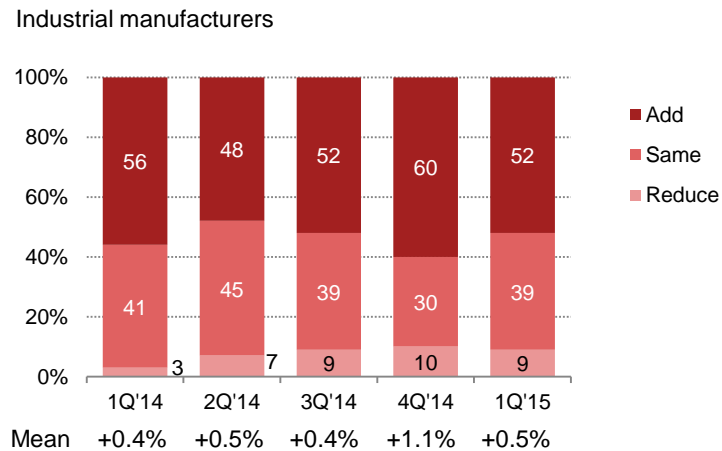
### Do you plan to add or reduce the number of full-time equivalent employees over the next 12 months?

In total, 52 percent of industrial manufacturers plan to add employees to their workforce over the next 12 months, down 8 points from the fourth-quarter 2014 estimates, and 4 points from a year ago (56 percent). Nine percent plan to reduce the number of full-time equivalent employees (off 1 point), and 39 percent will stay about the same. Total net workforce growth projection was 0.5 percent, well below the last quarter's high of plus 1.1 percent but similar to last year's 0.4 percent, indicating continued moderation in hiring among these industrial manufacturing firms.

### What types of employees do you plan to add over the next 12 months?

Among the 52 percent of respondents planning to hire within the next 12 months, the most sought-after employees will be skilled labor (33 percent) and professionals/technicians (21 percent), along with production workers (19 percent). Limited white collar support (10 percent) and sales/ marketing hiring is planned (9 percent).

Chart 4.3 Percent planning to hire



Note: In 1Q 2015 total respondents = 58

Chart 4.4 Percent planning to hire by type of employee

Industrial manufacturers

	1Q '14	2Q '14	3Q '14	4Q '14	1Q '15
Planning to hire (net)	56%	48%	52%	60%	52%
• Skilled labor	33%	32%	33%	35%	33%
• Professionals/ technicians	28%	20%	26%	32%	21%
• Production workers	30%	27%	26%	28%	19%
• White collar support	20%	8%	10%	12%	10%
• Sales/marketing	15%	8%	7%	10%	9%



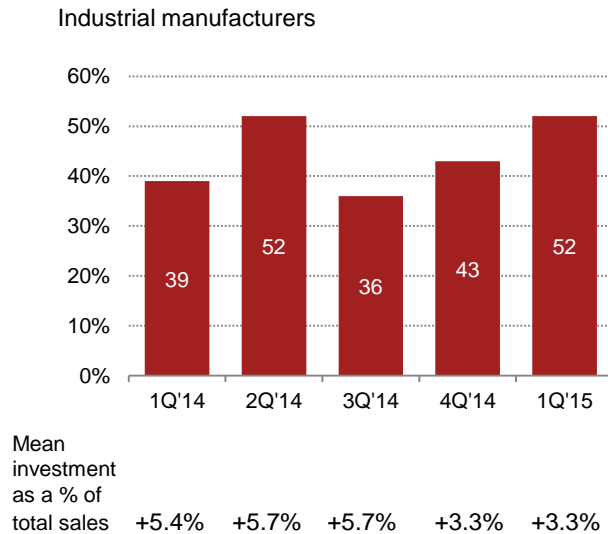
**Are you actively planning any major new investments of capital over the next 12 months? If so, what percentage of total sales do you expect to invest?**

Overall, 52 percent of US industrial manufacturers surveyed plan major new investments of capital during the next 12 months, up 9 points from the prior quarter's 43 percent, and 13 points above last year's 39 percent. The mean investment as a percentage of total sales was a relatively low 3.3 percent, similar to last quarter's 3.3 percent but well below the 5.4 percent a year ago. These findings indicate an uptick in the number of panelist firms planning CapEx spending over the next 12 months, but they are spending at a moderate level.

**Over the next 12 months, where do you expect to increase spending?**

Looking ahead over the next 12 months, operational spending increased: 83 percent of respondents plan to increase operational spending, up 1 point quarter-to-quarter. Leading increased expenditures were new product or service introductions (55 percent, up 3 points), research and development (40 percent, off 7 points), and information technology (33 percent, up 5 points). Business acquisition was up 6 points to 28 percent. Plans for geographic expansion dropped to 19 percent (off 8 points from its high last quarter). Marketing and sales promotion was also down 6 points to 9 percent.

**Chart 4.5 Percent planning major new investments of capital**



Note: In 1Q 2015 total respondents = 58

**Chart 4.6 Percent planning to increase operational spending**

Industrial manufacturers	1Q '14	2Q '14	3Q '14	4Q '14	1Q '15
Percent planning to increase spending (net)	75%	75%	69%	82%	83%
• New product or service introduction	44%	43%	43%	52%	55%
• Research and development	34%	45%	36%	47%	40%
• Information technology	38%	33%	29%	28%	33%
• Business acquisition	21%	27%	16%	22%	28%
• Facilities expansion	21%	20%	17%	20%	19%
• Geographic expansion	21%	22%	19%	27%	19%
• Marketing and sales promotion	13%	5%	9%	15%	9%
• Internet commerce	2%	2%	2%	5%	3%
• Advertising	3%	5%	2%	8%	1%

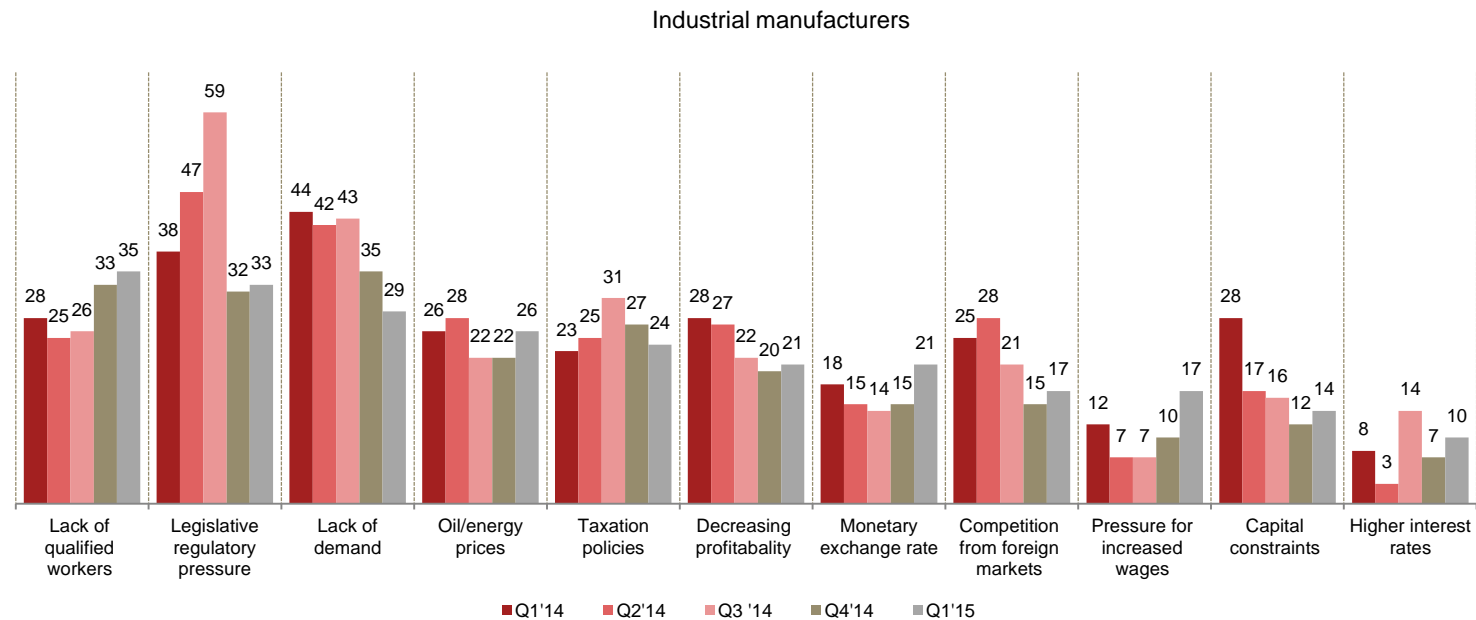
## Expected barriers to business growth



*Over the next 12 months, will any of the following represent barriers to business growth?*

Overall, a softening remained in levels of potential barriers to growth over the next 12 months. But lack of qualified workers rose 2 points to 35 percent and is slightly ahead of concern about legislative/regulatory pressures (33 percent) and demand (29 percent) as leading barriers to growth. They were followed by oil/energy prices (26 percent), taxation policies (24 percent), and decreasing profitability (21 percent). On the upside this quarter were monetary exchange rate/higher dollar (21 percent, up 6 points) and the related competition from foreign markets (17 percent, up 2 points), along with pressure for increased wages (17 percent, up 7 points).

**Chart 4.7 Expected barriers to business growth**



Note: In 1Q 2015 total respondents = 58



### Over the next 12 months, do you expect to participate in any of the following new business initiatives?

More panelists are planning M&A activity over the next 12 months, up 10 points to 43 percent, 15 points higher than a year ago. Most of these, 29 percent, are looking at purchasing another business, but many more, 16 percent (up 8 points), plan to sell part or all of their own business. Plans for expansion to new markets abroad decreased 3 points to 19 percent, with 12 percent planning new facilities abroad. New strategic alliances dropped to 17 percent, and new joint ventures are planned by 19 percent (off 6 points). Reductions abroad were reported by a low net 5 percent, with closing/reduction of facilities abroad cited by 3 percent. There are still fewer net closing facilities or reducing activity abroad than those expanding – 5 percent versus 12 percent expanding their facilities abroad.

Chart 4.8 Plans for M&A and other business initiatives

Industrial manufacturers					
	1Q '14	2Q '14	3Q '14	4Q '14	4Q '15
New business initiatives (net)	53%	47%	48%	53%	57%
• M&A activities (net)	28%	38%	26%	33%	43%
• Purchase another business	25%	35%	19%	25%	29%
• Sell part/all own business	7%	8%	7%	8%	16%
• Equity carve-out/spin-off	3%	3%	4%	5%	3%
• New joint venture	12%	15%	21%	25%	19%
• Expand to new markets abroad	18%	12%	14%	22%	19%
• New strategic alliance	23%	17%	21%	23%	17%
• New facilities abroad	13%	10%	9%	18%	12%
• Close/reduce facilities abroad	8%	8%	9%	7%	3%
• Reduce activity in markets abroad	7%	3%	9%	5%	3%

Note: In 1Q 2015 total respondents = 58



*Special topic:  
Robotics systems*



## Robotics systems: Use of robotics



## Robotics systems: Plans to acquire

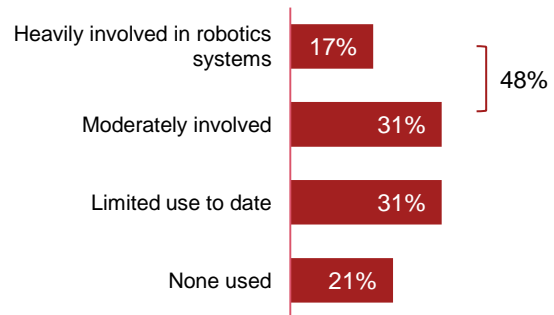
**To what extent does your company make use of robotics systems overall – in manufacturing, materials handling, and all other applications?**

Overall, four-fifths (79 percent) of US industrial manufacturers surveyed are presently using robotics systems. Nearly half (48 percent) are heavily involved or using them moderately. Another 31 percent have limited use to date, and 21 percent are non-users.

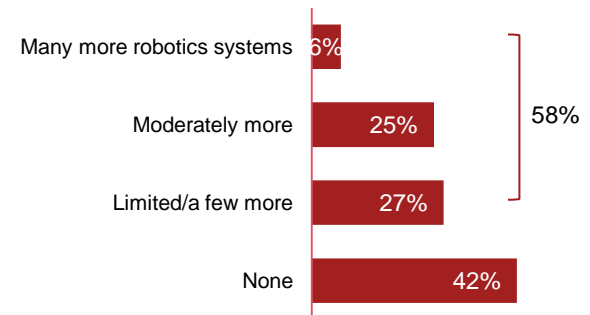
**Over the next two to three years, is your business planning to acquire many more, moderately more, or limited/a few more robotics systems?**

Over the next two to three years, more than half of these US industrial manufacturers surveyed (58 percent) are planning to acquire more robotics systems, and 31 percent are planning many or moderately more robotics systems.

**Chart 5.1 Company use of robotics systems**



**Chart 5.2 Plans to acquire robotics systems over next 2-3 years**

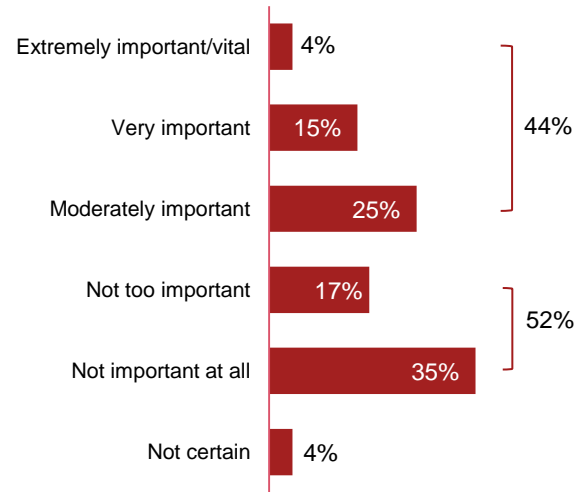




**Overall, how important do you believe robotics will be to your company's business and profit growth over the next two to three years?**

Overall, 44 percent of industrial manufacturers believe robotics will be important to their businesses and profit growth over the next two to three years, and 19 percent believe they will be very /extremely important. But the majority (52 percent) do not position robotics as important to their company's business and profit growth.

Chart 5.3 Importance of robotics systems to companies

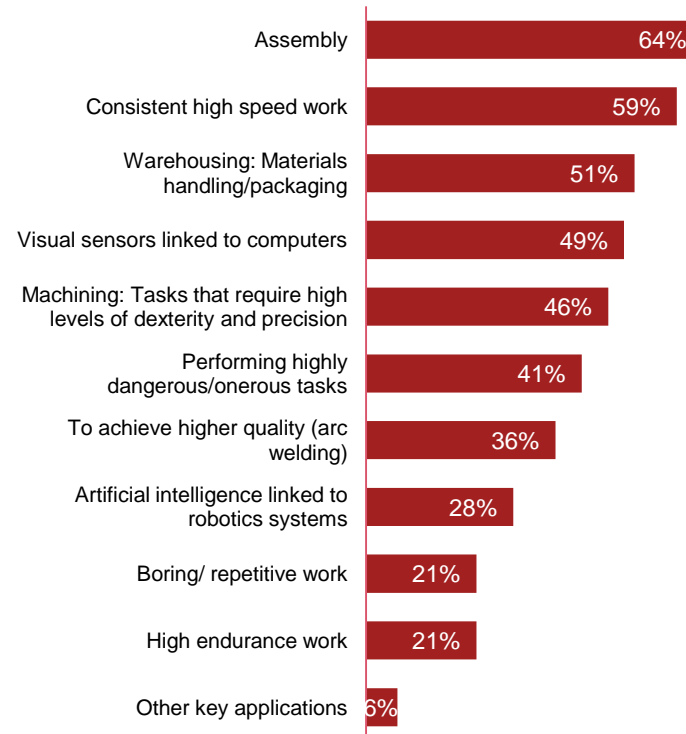




## What are the chief current and planned applications for which your company will be using robotics systems over the next two to three years?

A wide array of important applications are currently used or planned over the next two to three years, led by assembly (64 percent), consistent high speed work (59 percent), and materials handling/packaging (51 percent); followed by visual sensors linked to computers (49 percent). Machining was cited by 46 percent, and highly dangerous/onerous tasks were cited by 41 percent. Higher quality work (arc welding) was cited by 36 percent, and artificial intelligence linked to robotics systems was cited by 28 percent.

Chart 5.4 Chief current and planned applications





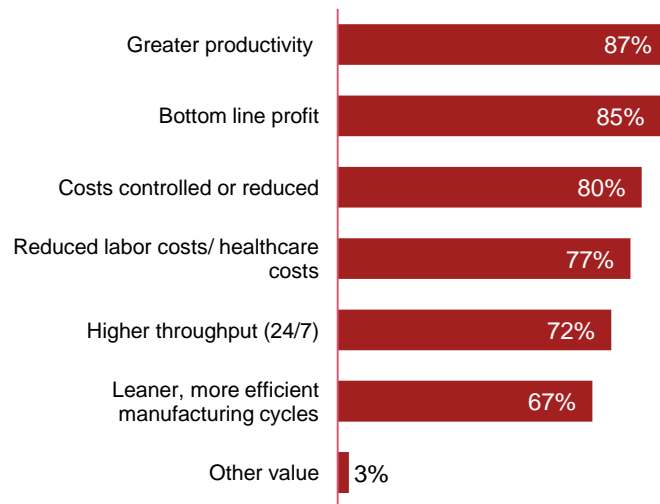
**To what extent do robotics systems help your business deliver value?**

A strong set of business values are delivered by robotics systems according to industrial manufacturers surveyed. Highest “definitely” ratings were given to greater productivity (49 percent, 87 percent overall) and reduced labor costs/ healthcare costs (59 percent, 77 percent overall). Bottom line profit is also highly cited by 85 percent (but fewer, 28 percent, say this value is “definitely” delivered).

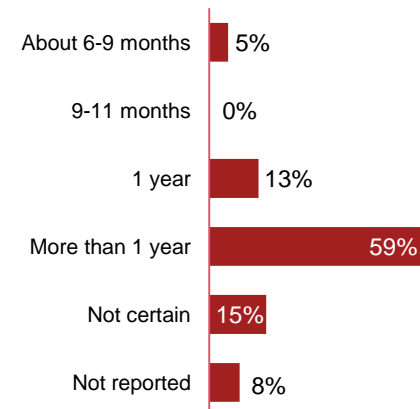
**An ROI (return on investment) question... What is your typical ROI expectation to cover initial cost of your robotics systems?**

Estimated ROI expectation to cover initial cost of robotics systems is typically 1 year or more (59 percent) – with an average of 2.5 years. Only 18 percent anticipated ROI recovery of initial cost in the first year.

**Chart 5.5 Business values delivered (Definitely/probably)**



**Chart 5.6 ROI expected to cover initial cost**

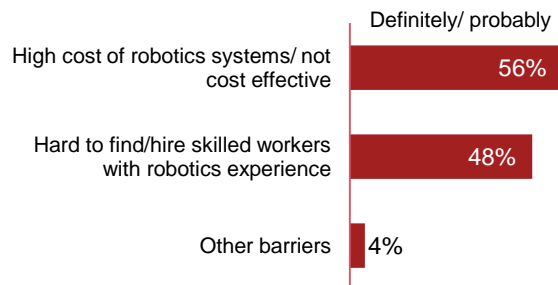




**What are the chief barriers to your company acquiring/acquiring more robotics systems?**

Cost of robotics systems or lack of cost effectiveness is cited as a barrier to acquisition by 56 percent (27 percent “definitely”). Difficulty finding/hiring skilled workers with robotics experience is a bit lower of a barrier at 48 percent (only 13 percent “definitely”).

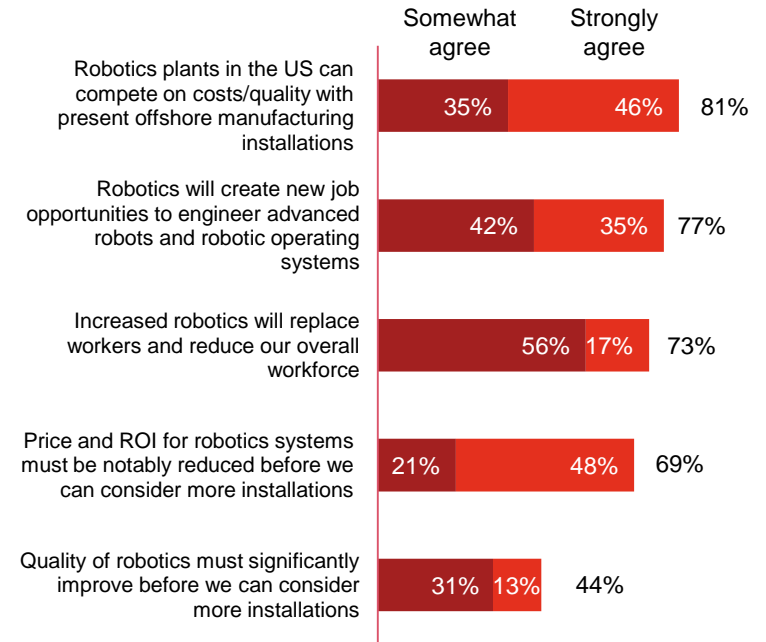
**Chart 5.7 Chief barriers to acquiring/acquiring more robotics systems**



**What is your opinion about the following statements concerning robotics systems? Do you agree strongly, agree somewhat, or disagree?**

Four-fifths (81 percent) of industrial manufacturers surveyed believe that robotics plants in the US can compete on costs and quality with present offshore manufacturing installations. But price and ROI for robotics systems must be notably reduced before they can consider more installations (69 percent). Yet, importantly, the quality of robotics may not have to improve significantly before they can consider more installations.

**Chart 5.7 Opinions about robotics systems**





## Demographics

Who	Senior executives of US-based industrial manufacturing organizations
Interview dates	December 23, 2014 to March 20, 2015
	<b>Industrial manufacturers (58)</b>
Average number of employees at location	8,265
Average business unit revenue	\$3.17 billion
Average enterprise revenue	\$8.28 billion
Market capitalization	\$9.91 billion
Industry sectors	Products 100% Manufacturing 100%

## Methodology

PwC's *Manufacturing Barometer* is a quarterly telephone survey conducted by the independent research firm BSI Global Research Inc. Our regular survey panel consists of senior executives from a geographically balanced sample of large companies in the United States. Ninety-five percent of the panelists hold titles such as president, CEO, CFO, VP of finance, treasurer, controller, internal audit director, or other related title.

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## About the research:

The *Manufacturing Barometer* is one in a series of quarterly business outlook surveys from PwC. The survey provides a view on the 12-month outlook for revenue growth, new investments, new hiring plans, emerging business barriers and more. In addition to the business outlook, we hear from our panelists about special issues they face as the business climate changes. Results of the quarterly business outlook surveys and special issue surveys are available at [www.barometersurveys.com](http://www.barometersurveys.com).

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