Manufacturing Barometer

Business outlook report
January 2017

Special topic:
Year in review and the year ahead

pwc

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A major prospective uplift in attitudes toward business growth has appeared among PwC's panel of leading US industrial manufacturers in fourth quarter 2016. This uplift appears related to a strong change in panelists' attitudes about the US economy and its near-term prospects over the next 12 months.

Significantly, 78 percent of panelists believed the US economy (but not the world economy) had begun to show sharp upward growth in the fourth quarter 2016.

In the fourth quarter, there was a doubling of the view that the US economy has begun to grow – from 38 percent two quarters ago to 78 percent of panelists currently, a significant increase of 40 points. These levels were only 14-16 points below the manufacturing panel highs of 94 percent back in 2Q 2004 and 92 percent in 1Q 2006; well before the financial meltdown and recession of 2008-2009.

Optimism about the US economy's prospects over the next 12 months rose as well, increasing from 35 percent two quarters ago to the 57 percent level, a notable 22 point increase. These levels are high, but do not yet challenge the manufacturing panel highs of 84 percent in 2Q 2004 or the 76 percent in 4Q 2005.

It is noteworthy that these same industrial manufacturing panelists remain consistently low in their outlook for the world economy in 4Q 2016 – only 13 percent cite growth, down from 20 percent two quarters ago. And optimism about the world economy's prospects over the next 12 months was at 30 percent, only 1 point above the 29 percent level two quarters ago. Significantly, the world economy's optimism high in the manufacturing panel was a very strong 83 percent back in 1Q 2007, and its highest recent optimism level was 47 percent, back in 4Q2013. So the major increase in optimism toward the US economy's growth prospects is sharply different from their lower expectations and uncertainty about the world economy's prospects.

Other signs of a revitalization among industrial manufacturers include own-company revenue forecast averages edging toward the 5 percent level – up from 3.6 percent a year ago to 4.6 percent (a 28 percent increase), with 85 percent of industrial manufacturers expecting positive growth in 2017, and only 4 percent expect negative or zero growth. However, a large number, 11 percent, said they could not estimate currently, and were not reported. It is also important to note that a consistency in their expected revenue contribution from own-company international sales to total revenues remained high at 33 percent, despite their general feelings of uncertainty toward the world economy.

Renewed spending uplift over the next 12 months is also planned by many more industrial manufacturers. CapEx plans rose to the 60 percent level, close to the manufacturing panel high of 67 percent in 4Q 2011. Many more are spending on CapEx, but at lower rates, 2.2 percent of sales. Increased budget spending was also found for most areas, led by new products or service introductions, 67 percent (up 23 points from a year ago).

Headwinds to growth over the next 12 months remained the same, led by monetary exchange rate barriers (48 percent), lack of demand (43 percent), and legislative/regulatory pressures (43 percent). The rise in federal interest rates typically results in a higher dollar. Consistent with a prospective rise in GDP growth rate, we would expect to see downward pressure on legislative/regulatory pressure, and taxation policies, along with lower levels of competition from foreign markets.

Overall, fourth quarter 2016 findings raise the question whether an inflection point has taken place in attitudes among industrial manufacturers, leading to a potential rise in US GDP.

Key findings

A significant attitudinal uplift in US economy's business growth

Significantly, 78 percent of US industrial manufacturers surveyed believed that the US economy was growing in fourth quarter 2016. This uplift in optimism was double the 38 percent two quarters before in 2Q 2016, 40 points higher. Only 3 percent believed it was declining and 19 percent believed it was unchanged.

In sharp contrast, only 13 percent believed that the world economy was growing in fourth quarter 2016, 8 points below the 20 percent in 2Q 2016. The large majority, 60 percent, believed the world economy was unchanged, while 27 percent viewed it as declining (which was 11 points fewer than at the midyear).

A surge in optimism about the US economy's prospects

Looking ahead, the majority of US industrial manufacturing panelists, 57 percent, are now optimistic about the US economy's prospects over the next 12 months, a rise of 22 points from the minority of 35 percent optimistic in 2Q16. The remainder were uncertain, and only 2 percent were pessimistic.

Yet optimism toward the world economy over the next 12 months remained low, gaining only 1 point from 29 percent in 2Q16 to 30 percent in 4Q16. The majority remained uncertain, 54 percent, while 16 percent were pessimistic (9 points fewer than at midyear).

While optimism about the world economy's prospects in general remained flat and uncertain, own-company revenue contributions from panelists' own offshore sales remained consistently strong.

Higher forecasts for own-company revenue growth ahead

In line with significantly stronger pro-growth attitudes in fourth quarter 2016, panelists from US industrial manufacturing companies raised their own company's 2017 12-month revenue forecasts edging toward the 5 percent level – up from 3.6 percent a year ago to 4.6 percent (a 28 percent higher forecast). Looking ahead, 85 percent forecasted positive revenue growth in the year ahead, while only 2 percent expect negative growth, 2 percent expect zero growth, and a larger number (11 percent) were unable to report in this fast-changing US economic environment.

Own-company international revenue stays high

It is also important to report that the international contribution to own-company revenues over the year ahead remained high – rising 1 point to the 33 percent level.

So while attitudes about the world economy's prospects in general remained low or uncertain, these industrial manufacturers are bullish about their own company's contributions to revenue from the international area.

In fourth quarter 2016, 67 percent report that international sales were up (6 percent) or the same (61 percent), while 33 percent reported it down in general.

Major liftoff in CapEx spending and budget increases

With strong pro-growth attitudes emerging, CapEx plans for the year ahead rose 17 points from 43 percent in 2Q16 to a high of 60 percent – 11 points higher than year ago. This high CapEx planning is very close to the industrial manufacturing panel's high of 67 percent back in 4Q2011.

Key findings

Operational spending plans for the year ahead were also notably higher across the board (98 percent), led by new product or service introductions, 67 percent (up 23 points from a year ago); research and development, 52 percent (up 11 points); information technology, 42 percent (up 6 points); facilities expansion, 33 percent (up 11 points); geographic expansion, 28 percent (up 9 points); and marketing and sales promotion, 27 percent (up 12 points).

New business initiatives were also higher, 70 percent (21 points above a year ago). The leading initiatives planned for the next 12 months were M&A activity (42 percent), new strategic alliances (27 percent) and new joint ventures (28 percent). Expansion to new markets abroad rose to 17 percent (3 points above a year ago), and new facilities abroad were also at 17 percent (8 points higher).

New composite hiring plans move slightly back into the positive

Looking ahead, 35 percent of industrial manufacturers plan to add employees to the workforce over the next 12 months, up slightly (3 points) from 2Q's 32 percent, but below the 42 percent a year ago (7 points lower). The majority of companies (52 percent) plan about the same number of employees, while 13 percent were in the reduction mode.

And yet... more hiring is indicated for the year ahead: +0.14 percent composite hirings compared with a negative 0.4 percent in 2Q16 and a flat 0.0 percent a year ago.

Note also that 20 percent now cite lack of available qualified workers as a barrier in the year ahead, 6 points higher than a year ago (14 percent) when composite hiring was flat.

Headwinds: Strong dollar, demand, and legislative/ regulatory pressure

Similar underlying barrier to own-company growth over the next 12 months is reflected in the three top headwinds: the strong dollar/monetary exchange rate, 48 percent (down 1 point from a year ago), lack of demand, 43 percent (up 4 points from a year ago), legislative/regulatory pressures, 43 percent (up 21 points), and decreasing profitability, 33 percent (up 4 points). Concern about oil/energy prices was at 28 percent (down 4 points), and concern about lack of skilled, qualified workers was at 20 percent (6 points higher than a year ago).

Gross margins, costs and prices higher

In 4Q 2016, the gross margins of industrial manufacturers was moderately positive with 25 percent reporting higher margins and 22 percent lower, for a net +3 percent increase (versus -2 percent a year ago).

Costs were higher (net +19 percent), while prices were somewhat higher (net +9 percent). Looking ahead, concern about decreasing profitability was at the 33 percent level (4 points higher than a year ago).

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.

Special topic: Year 2016 in review and opportunities for 2017

First, was your company able to execute its overall corporate strategy for 2016?

Overall, 72 percent of industrial manufacturers were able to execute all or most of their company's corporate strategy in 2016 – only 12 percent all of it and 60 percent most of it. Twenty-six percent were not able to effectively execute overall corporate strategy for the year (only part – 23 percent; mostly not – 3 percent).

Why is it that your company will not be able to do "all or most of it" in 2016? What obstacles got in the way?

The major obstacles that caused 26 percent not to be able to execute their corporate strategy in 2016 were:

- Pricing issues (94%)
- Market conditions in the US (63%)
- Market conditions abroad (net 50%)
    - Sluggish European economies (44%)
    - Slow growth in China (31%)
- Increased cost of doing business (50%)
- Changing customer demographics (31%)

Also noted were cost of commodities; strategy not aligned; regulatory pressures; and political uncertainties.

Would you say that by the end of 2016 your company will have met your revenue-growth targets for the year?

In total, 72 percent of industrial manufacturers met their revenue growth targets (62 percent) or exceeded targets (10 percent) for 2016, while 27 percent did not meet their targets, falling short by, on average, 6 percent.

Do you expect your company will be back on track by first half of 2017?

By first half of 2017, 31 percent of the 27 percent will be back on target, and 69 percent are not certain.

Over the past year, approximately how many full-time equivalent employees did your business add or reduce? What was your net plus or minus employee count for the year?

In total, 40 percent of these industrial manufacturers net added employees in 2016 and 13 percent net reduced. Thirty-five percent stayed about the same, and 12 percent were not certain or not reported. Composite workforce added/reduced in year 2016 was +0.13 percent.

Over the past year, has your organization had open positions that you were unable to fill with experienced, trained or skilled employees?

Only 12 percent reported open positions that their companies were unable to fill in 2016. Fifty-three percent had none. But a high proportion, 35 percent, were not certain (18 percent) or not reported (17 percent).

Which of the following do you believe are top opportunities that your company will pursue in 2017 to achieve its corporate objectives?
What level of importance to you place on each of these opportunities—one of our top opportunities, a moderate opportunity, or a minor or limited opportunity?

Six top opportunities industrial manufacturers will pursue in 2017 to achieve their corporate objectives are:

(1)	Improve customer experience	63%
(2)	Greater cost containment	57%
(3)	Technology advances	55%
(4)	Product and service innovation	53%
(5)	Greater work productivity	45%
(6)	Market expansion to new products and services	43%

Secondary strength was also high for "New or improved ways of delivering products and services"… 35%, top opportunity, and 43% moderate opportunity.

Key indicators for the business outlook

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 6 months.

Business outlook, next 12 months among industrial manufacturers	2015		2016		Change	Page
	4Q'15	1Q'16	2Q'16	4Q'16	2Q'16–4Q'16	
Optimistic about US economy	46%	42%	35%	57%	↑	11
Optimistic about world economy	27%	24%	29%	30%	=	12
Expect positive revenue growth	70%	72%	78%	85%	↑	20
Average growth rate expected	3.6%	3.7%	4.2%	4.6%	↑	20
Planning major new investments	49%	53%	43%	60%	↑	22
New investments as a % of sales	1.9%	1.9%	2.3%	2.2%	=	22
Planning to hire	42%	38%	32%	35%	↑	21
New workers as a % of workforce (net)	0.0%	0.1%	-0.4%	0.14%	↑	21
Expected barriers to growth:						
• Monetary exchange rate	49%	45%	48%	48%	=	23
• Lack of demand	39%	50%	42%	43%	=	23
• Legislative/regulatory pressures	22%	30%	35%	43%	↑	23
• Competition from foreign markets	22%	13%	28%	42%	↑	23
• Decreasing profitability	29%	27%	32%	33%	=	23
• Taxation policies	14%	13%	18%	32%	↑	23
• Oil/energy prices	32%	12%	32%	28%	↓	23
• Lack of qualified workers	14%	15%	20%	20%	=	23
• Pressure for increased wages	14%	10%	7%	15%	↑	23
• Higher interest rates	10%	12%	7%	10%	↑	23
• Capital constraints	7%	7%	5%	7%	↑	23

Economic views

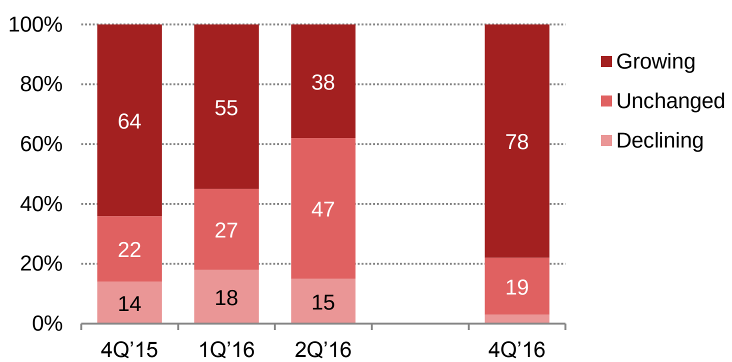
View of the US economy, this quarter

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

In fourth-quarter 2016, 78 percent of US industrial manufacturers surveyed believed the US economy was growing, a sharp rise of 40 points from the second quarter's 38 percent and 14 points higher than the 64 percent a year ago. Only 3 percent believed it was declining (an improvement of 12 points) and 19 percent saw no change from second-quarter 2016.

Chart 2.1 View of the US economy, this quarter

Industrial manufacturers



Note: In 4Q 2016 total respondents = 60

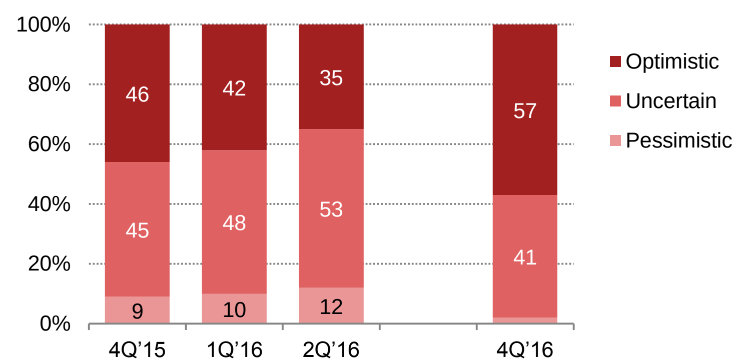
View of the US economy, next 12 months

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

Looking ahead, the majority (57 percent) of industrial manufacturing panelists expressed optimism about the 12-month outlook for the US economy, a sharp rise of 22 points from the midyear's 35 percent and 11 points above a year ago (46 percent). Two percent were pessimistic (10 points fewer than midyear), while 41 percent were uncertain. A year ago, 46 percent were optimistic, and 9 percent were pessimistic.

Chart 2.2 View of the US economy, next 12 months

Industrial manufacturers



View of the world economy, this quarter

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

In fourth-quarter 2016, 13 percent of the panelists marketing abroad viewed the world economy as growing, down 7 points from midyear's 20 percent, and 5 points below the 18 percent a year ago. Twenty-seven percent believed it was declining (11 points fewer than the second quarter). A year ago, 40 percent viewed it as declining (13 points higher). Sixty percent said they saw no change. Currently, perceptions of the world economy regained some strength from its disturbingly low point of 2 percent in 1Q 2016.

View of the world economy, next 12 months

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

Looking ahead, nearly one-third (30 percent) of US-based industrial manufacturers who market abroad are optimistic about the prospects for the world economy over the next 12 months, up 1 point from midyear's 29 percent, and 3 points above a year ago (27 percent). Sixteen percent are pessimistic (down 9 points), while 54 percent are uncertain. A year ago, 27 percent were optimistic (3 points lower) and 22 percent were pessimistic (6 points higher).

Chart 2.3 View of the world economy, this quarter

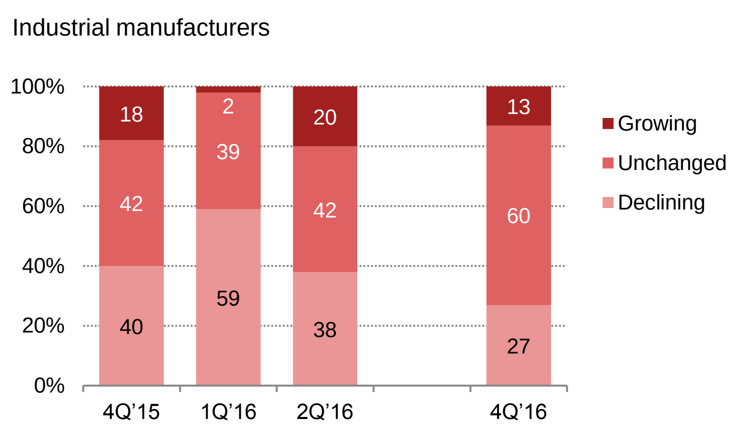
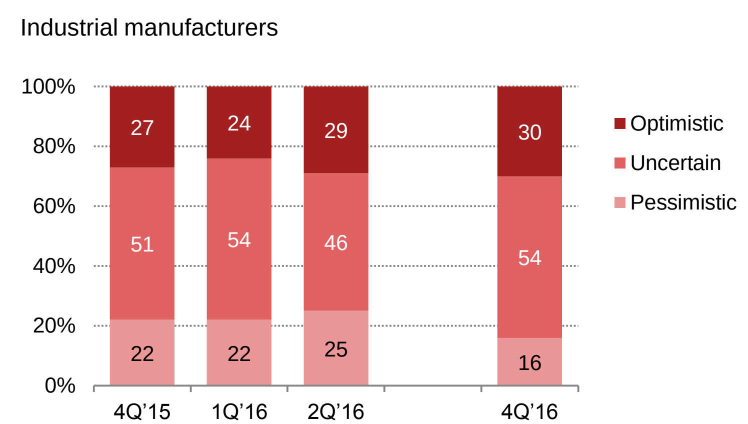


Chart 2.4 View of the world economy, next 12 months



Note: In 4Q 2016 total respondents marketing abroad = 56

Company performance

Company revenue growth, calendar year

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

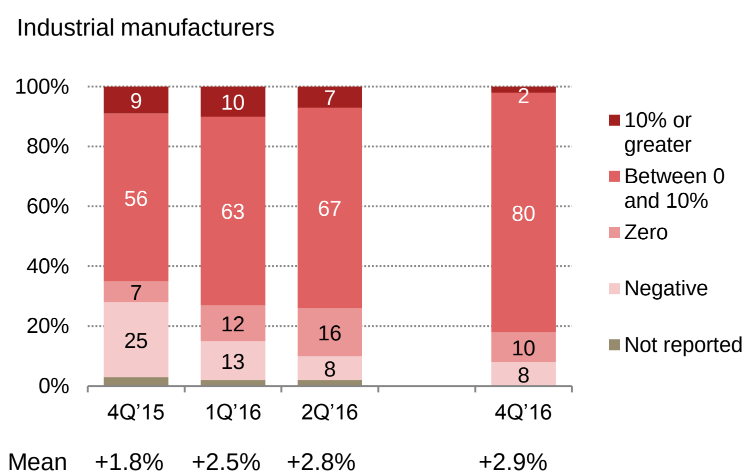
The composite average growth estimate for own-company revenue for the calendar year 2016 remained a steady 2.9 percent from 2.8 percent at midyear, and was a point above the 1.8 percent a year ago. Eighty-two percent of respondents said they expect positive own-company growth, with 2 percent expecting double-digit growth and 80 percent anticipating single-digit growth. Eight percent were on the negative side (no change from midyear), while 10 percent expected zero growth.

Industry growth, calendar year

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

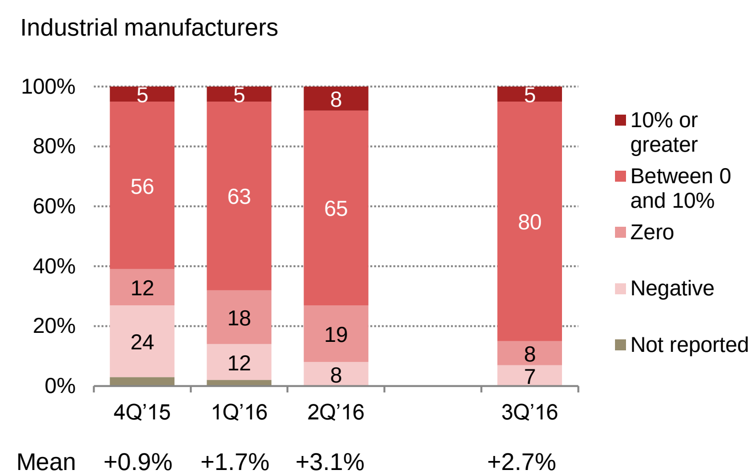
Estimated industry growth rate for calendar year 2016 remained steady at 2.7 percent, below midyear's 3.1 percent for calendar-year 2016 but well above the 0.9 percent a year ago. Eighty-five percent of panelists reported positive industry growth for 2016 (5 percent double-digit growth and 80 percent single-digit growth). Seven percent were on the negative side and 8 percent expected zero growth for this year.

Chart 3.1 Company revenue growth, calendar year



Note: In 4Q 2016 total respondents = 60

Chart 3.2 Industry growth, calendar year

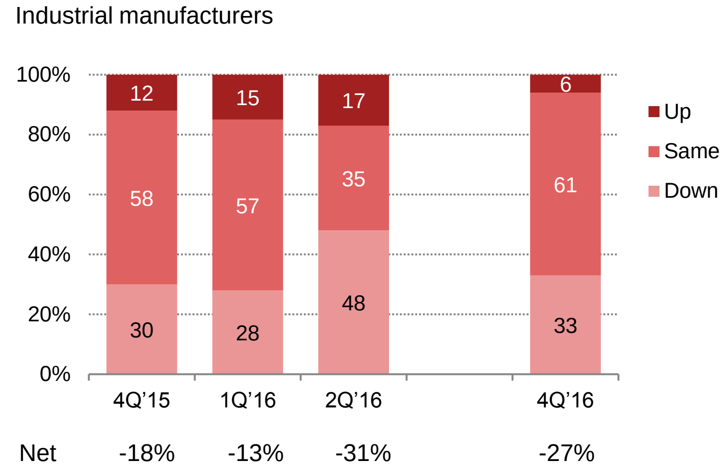


International sales

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

US-based industrial manufacturers that sell abroad reported a continued decrease in international sales in 4Q 2016, with only 6 percent reporting an increase in sales but a 33 percent reporting a decrease, for a net 27 percent decrease (4 points better than midyear, but 9 points worse than a year ago). The remaining 61 percent said sales stayed about the same quarter to quarter. Note that this appears to continue the quarterly slowdown of international sales among these panelists.

Chart 3.3 International sales



Note: In 4Q 2016 total respondents marketing abroad = 56

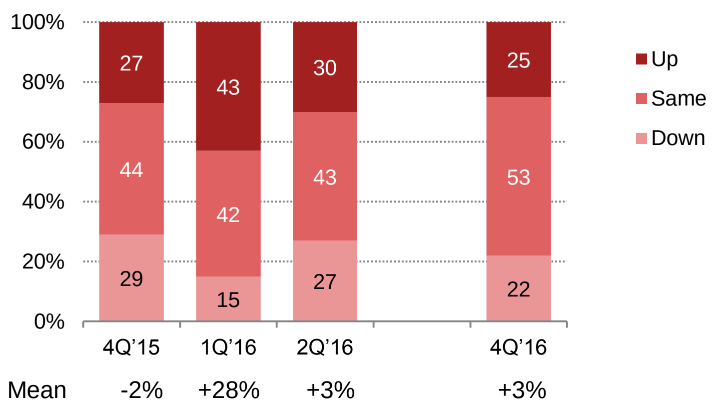
Changes in gross margins

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

In fourth-quarter 2016, gross margins were slightly positive. They were higher for 25 percent of panelists and lower for 22 percent (5 points fewer), for a net +3 percent, same as midyear's +3 percent, and 5 points above the -2 percent a year ago. Fifty-three percent stayed about the same.

Chart 3.4 Changes in gross margins

Industrial manufacturers



Note: In 4Q 2016 total respondents = 60

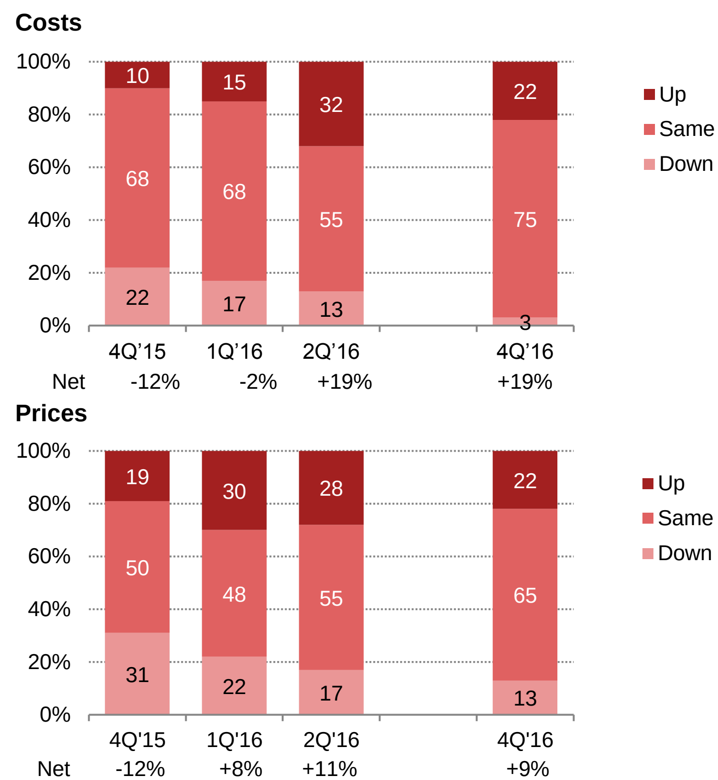
Changes in costs and prices

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

In fourth-quarter 2016, costs were higher and prices moderately so. Twenty-two percent of US-based industrial manufacturers reported higher costs (down 10 points) and 3 percent reported lower costs (down 10 points), for a net +19 percent change, same as midyear's +19 percent. On the price side, 22 percent raised prices (down 6 points) while 13 percent lowered them (down 4 points), for a net +9 percent reporting lower prices (2 points below midyear) as some price flexibility continued.

Chart 3.5 Changes in costs and prices

Industrial manufacturers

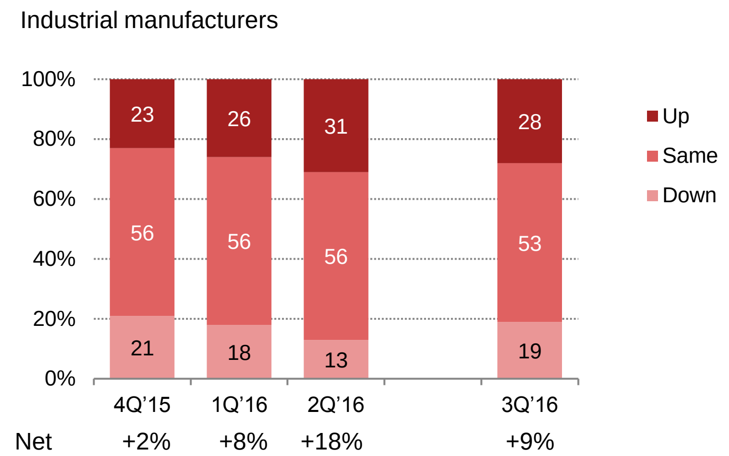


Inventory movement

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

Inventories grew for 28 percent of US-based industrial manufacturers in the fourth quarter, down 3 points from midyear. Levels were down for 19 percent (6 points higher), for a net +9 percent higher inventory movement in fourth-quarter 2016. A year ago in 4Q15, inventories were at a lower net +2 percent, on the up side, indicating some inventory growth in 4Q 2016.

Chart 3.6 Inventory movement



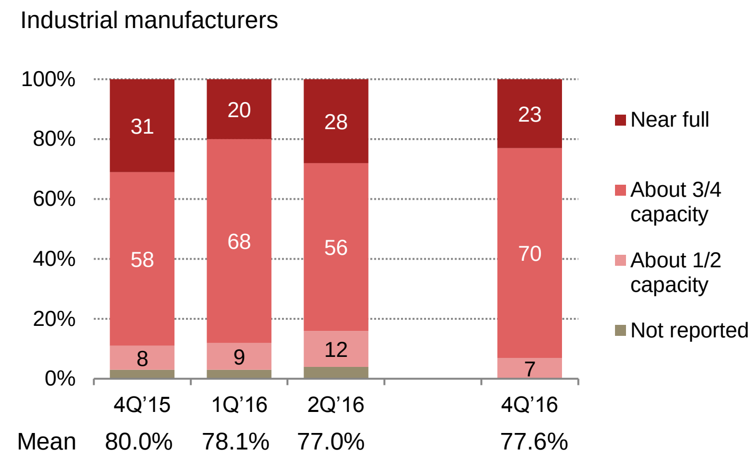
Note: In 4Q 2016 total respondents = 60

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 fourth quarter, the mean was 77.6 percent of capacity, similar to midyear, but down from 80.0 percent a year ago, with 23 percent of industrial manufacturers surveyed claiming to be at or near full capacity, down 5 points from the second quarter and 8 points below a year ago (31 percent).

Chart 3.7 Level of operating capacity



Note: In 4Q 2016 total respondents = 60

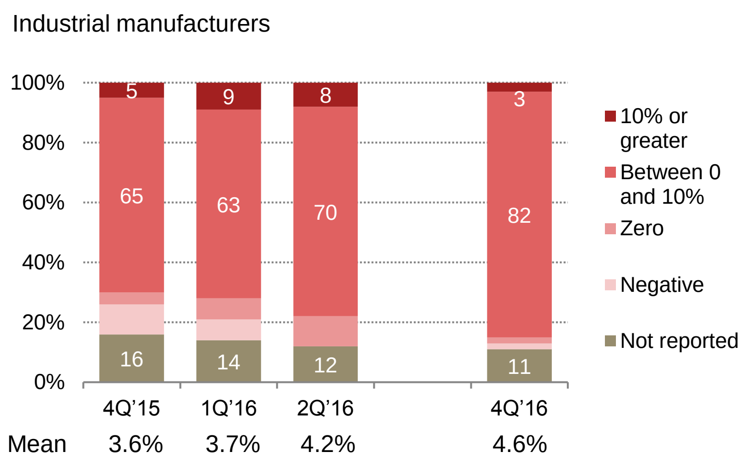
Business outlook, next 12 months

Revenue growth, 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 increased to a 4.6 percent pace, a half-point above midyear's 4.2 percent, and a full point above a year ago (3.6 percent). Eighty-five percent expect positive revenue growth for their own companies, with 3 percent forecasting double-digit growth and 82 percent forecasting single-digit growth. Two percent forecast negative growth, and 2 percent forecast zero growth, and a high 11 percent were not reported. A growth rate well above the revenue growth pace of a year ago is now expected.

Chart 4.1 Revenue growth, next 12 months



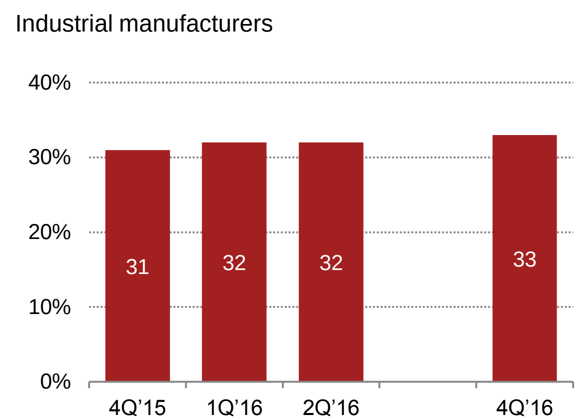
Note: In 4Q 2016 total respondents = 60

International sales, next 12 months

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 rose somewhat to the 33 percent level, 1 point above the midyear, and 2 points above a year ago. Interestingly, contribution from international sales remained high, despite the lower quarterly pace of international sales increases.

Chart 4.2 International sales, next 12 months



Note: In 4Q 2016 those marketing abroad = 56

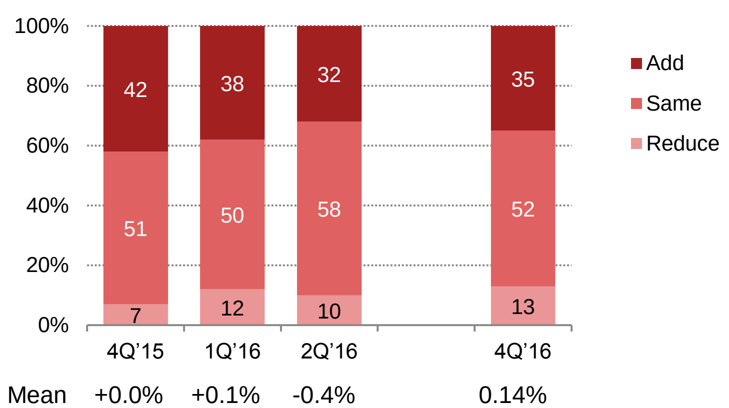
Percent planning to hire

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

In total, 35 percent of industrial manufacturers plan to add employees to their workforce over the next 12 months, up 3 points from the 32 percent at midyear, but off 7 points from a year ago (42 percent). Only 13 percent plan to reduce the number of full-time equivalent employees (up 3 points) and 52 percent will stay about the same. Total net workforce growth projection was slightly positive this quarter, at plus 0.14% percent, above midyear's minus 0.4 percent and last year's flat 0.0 percent, indicating a small upward change in planned hiring growth among these industrial manufacturing firms.

Chart 4.3 Percent planning to hire

Industrial manufacturers



Note: In 4Q 2016 total respondents = 60

Percent planning to hire by type of employee

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

Among the 35 percent of panelists planning to hire within the next 12 months, the most sought-after employees will be blue collar/skilled labor (22 percent, same as midyear) and professionals/technicians (18 percent, same). White collar support was at 7 percent and middle management at a higher 10 percent. Note that technology/ engineering led the way among professionals, at 17 percent (up 2 points). Blue collar is split between skilled/ specialized workers (18 percent) and semi-skilled (13 percent).

Chart 4.4 Percent planning to hire by type of employee

Industrial manufacturers

	4Q'15	1Q'16	2Q'16	4Q'16
Planning to hire (net)	42%	38%	32%	35%
• **Blue collar workers**	29%	22%	22%	22%
• Skilled/specialized workers	19%	15%	17%	18%
• Semi-skilled or unskilled workers	15%	17%	8%	13%
• **Professionals**	27%	27%	18%	18%
• Technology/engineering	27%	23%	15%	17%
• Sales/marketing	---	7%	5%	2%
• Business/finance	2%	---	---	---
• **White collar support**	10%	5%	5%	7%
• **Middle management**	2%	7%	3%	10%
• **Senior management**	---	---	---	---

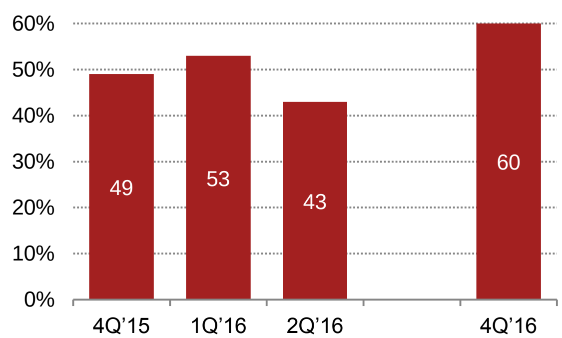
Percent planning major new investments of capital

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?

Significantly, 60 percent of US industrial manufacturers surveyed plan major new investments of capital during the next 12 months, up 17 points from the second quarter's 43 percent, and 11 points above last year's 49 percent. The mean investment as a percentage of total sales was at a low 2.2 percent, but up slightly from 1.9 percent a year ago. These findings indicate a sharp increase in the number of panelist firms planning CapEx spending over the next 12 months.

Chart 4.5 Percent planning major new investments of capital

Industrial manufacturers



	4Q'15	1Q'16	2Q'16	4Q'16
Mean investment as a % of total sales	+1.9%	+1.9%	+2.2%	+2.2%

Note: In 4Q 2016 total respondents = 60

Percent planning to increase operational spending

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

Looking ahead over the next 12 months, operational spending also reflects strong increases with 98 percent of panelists planning to increase operational spending (up 12 points from a year ago). Increased expenditures leaders were new product or service introductions (67 percent, up 15 points from midyear), research and development (52 percent, up 12 points), information technology (42 percent, up 12 points), facilities expansion (33 percent, up 13 points), and business acquisitions (33 percent, up 15 points). Plans for geographic expansion increased 13 points to 28 percent. Marketing and sales promotion rose 7 points to 27 percent, and advertising stayed at 7 percent. Note that internet commerce dropped back to 5 percent.

Chart 4.6 Percent planning to increase operational spending

Industrial manufacturers

	4Q'15	1Q'16	2Q'16		4Q'16
Percent planning to increase spending (net)	86%	80%	80%		98%
• New product or service introduction	44%	55%	52%		67%
• Research and development	41%	50%	40%		52%
• Information technology	36%	35%	30%		42%
• Facilities expansion	22%	18%	20%		33%
• Business acquisition	34%	33%	18%		33%
• Geographic expansion	19%	20%	15%		28%
• Marketing and sales promotion	15%	17%	20%		27%
• Advertising	9%	5%	8%		7%
• Internet commerce	2%	2%	10%		5%

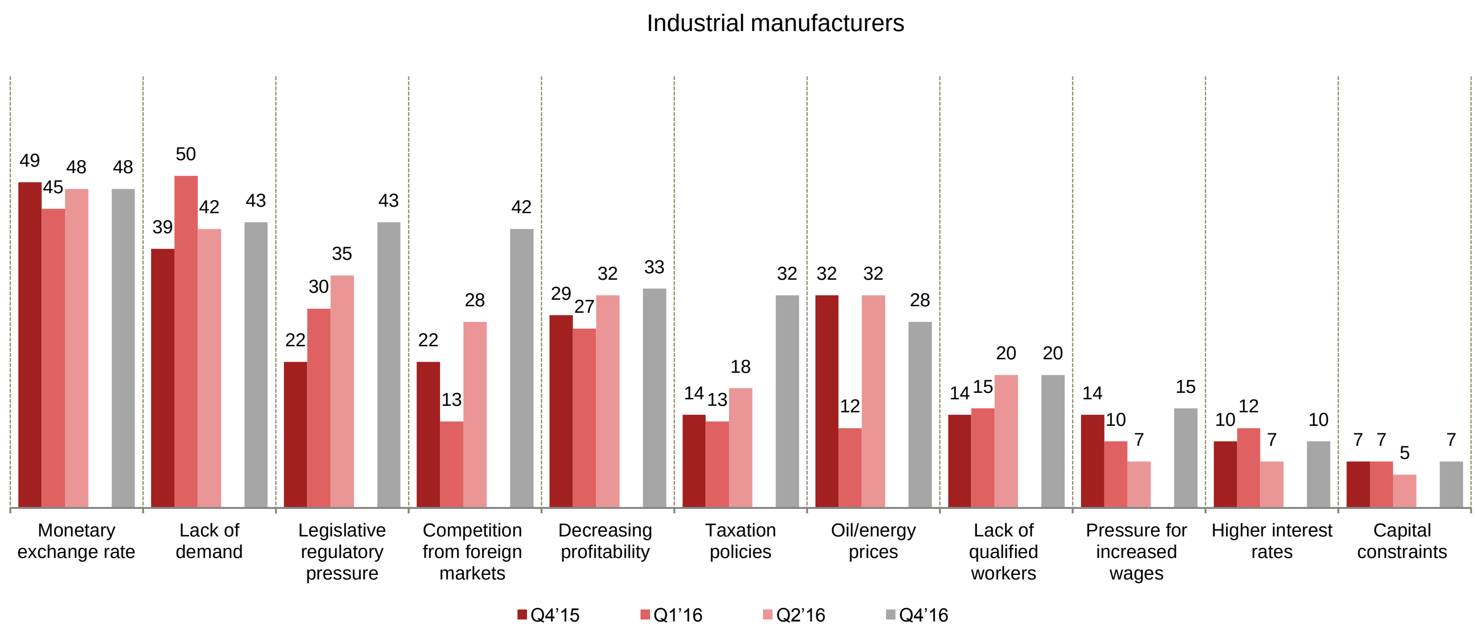
Expected barriers to business growth

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

Monetary exchange rate, lack of demand, and legislative/regulatory pressures continue to be the leading headwinds to growth over the next 12 months, at 48 percent, 43 percent and 43 percent, respectively. A year ago, monetary exchange rate was at 49 percent, 1 point higher, while lack of demand was at 39 percent, 4 points lower. And legislative/regulatory pressures were at 22 percent (21 points lower). Rising this quarter was taxation policies, 32 percent (up 14 points from midyear) and competition from foreign markets, 42 percent (up 14 points). Oil/energy remained lower at 28 percent (down 4 points), prior to the OPEC meetings (now $50 per gallon).

Lack of qualified workers remained a low 20 percent (up 6 points from a year ago). Decreasing profitability remained at 33 percent (4 points higher than a year ago).

Chart 4.7 Expected barriers to business growth



Note: In 4Q 2016 total respondents = 60

Plans for M&A and other business initiatives

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

It is noteworthy that 70 percent of panelists are planning new business initiatives (up 15 points). Many panelists (42 percent) are planning M&A activity over the next 12 months, up 3 points from a year ago (39 percent). They are mostly planning to purchase another business (37 percent, up 3 points), and some are planning to sell part or all of their own business (8 percent). Plans for expansion to new markets abroad rose to 17 percent (up 2 points), with 17 percent planning new facilities abroad. Reductions abroad were reported by a net 5 percent, with closing/reduction of facilities abroad cited by 3 percent, and reduced activity abroad by 3 percent. Net expansions abroad rose to 25 percent (up 8 points).

Increasing this quarter were strategic alliances (27 percent, up 7 points) and new joint ventures (28 percent, up 13 points).

Chart 4.8 Plans for M&A and other business initiatives

Industrial manufacturers

	4Q '15	1Q '16	2Q '16		4Q '16
New business initiatives (net)	49%	57%	55%		70%
• M&A activities (net)	39%	40%	27%		42%
• Purchase another business	34%	37%	22%		37%
• Sell part/all own business	10%	10%	10%		8%
• Equity carve-out/spin-off	2%	2%	---		2%
• New joint venture	17%	13%	15%		28%
• New strategic alliance	20%	20%	20%		27%
• Expand to new markets abroad	14%	10%	15%		17%
• New facilities abroad	9%	8%	7%		17%
• Close/reduce facilities abroad	3%	8%	5%		3%
• Reduce activity in markets abroad	7%	3%	7%		3%

Note: In 4Q 2016 total respondents = 60

Special topic: Year 2016 in review and top opportunities for 2017

Corporate strategy for 2016

First, was your company able to execute its overall corporate strategy for 2016?

Overall, 72 percent of industrial manufacturers were able to execute all or most of their company's corporate strategy in 2016 – only 12 percent all of it, and 60 percent most of it. Twenty-six percent were not able to effectively execute overall corporate strategy for the year (only part – 23 percent; mostly not – 3 percent).

Why is it that your company will not be able to do "all or most of it" in 2016? What obstacles got in the way?

The major obstacles that caused 26 percent to not be able to execute their corporate strategy in 2016 were:

- Pricing issues (94%)
- Market conditions in the US (63%)
- Market conditions abroad (net 50%)
    - Sluggish European economies (44%)
    - Slow growth in China (31%)
- Increased cost of doing business (50%)
- Changing customer demographics (31%)

Also noted were cost of commodities; strategy not aligned; regulatory pressures; and political uncertainties.

Chart 5.1 Ability to execute overall corporate strategy for 2016

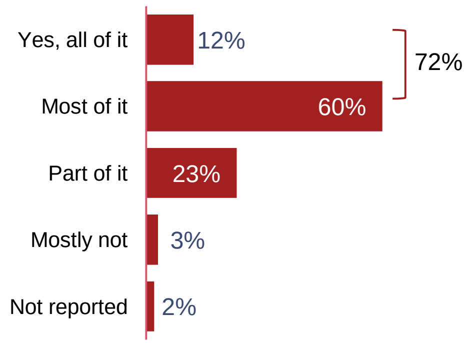
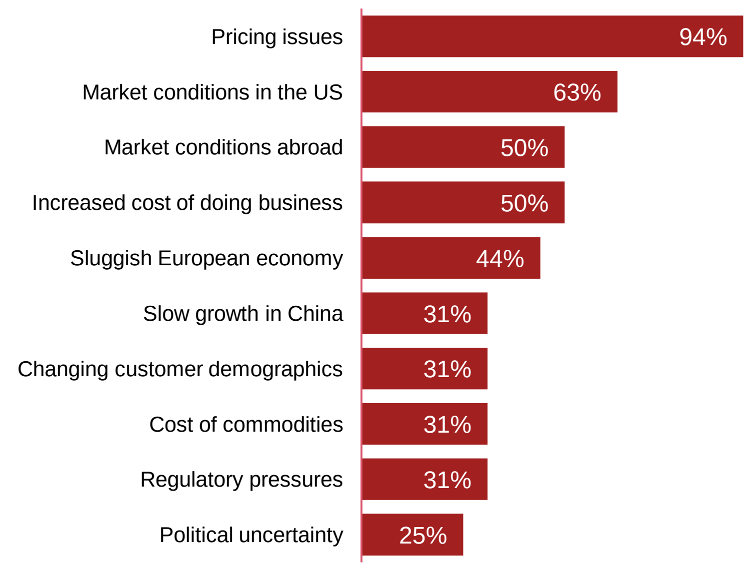


Chart 5.2 Obstacles to execute overall 2016 corporate strategy



Meeting revenue growth targets for 2016

Would you say that by the end of 2016 you company will have met your revenue-growth targets for the year?

In total, 72 percent of the industrial manufacturers surveyed met their revenue growth targets (62 percent) or exceed target (10 percent) for 2016, while 27 percent did not meet their targets, falling short by, on average, 6 percent.

Do you expect your company will be back on track by first half of 2017?

By first half of 2017, 31 percent of the 27 percent reporting no to the previous question will be back on target, and 69 percent are uncertain.

Chart 5.3 Meeting revenue growth target for 2016

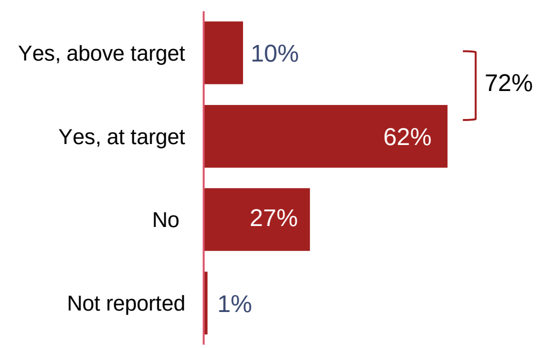
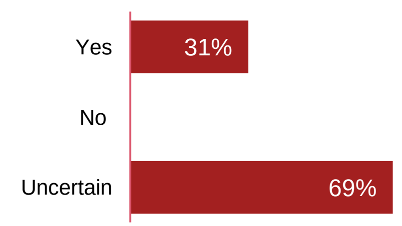


Chart 5.4 Back on track by first half of 2017



Employees added in 2016

Over the past year, approximately how many full-time equivalent employees did your business add or reduce? What was your net plus or minus employee count for the year?

In total, 40 percent of these industrial manufacturers net added employees in 2016 and 13 percent net reduced. Thirty-five percent stayed about the same, and 12 percent were not certain or not reported. Composite workforce added/reduced in year 2016 was +0.13%.

Over the past year, has your organization had open positions that you were unable to fill with experienced, trained or skilled employees?

Only 12 percent reported open positions that their companies were unable to fill in 2016; 53 percent had none. However, a high proportion (35 percent) were not certain (18 percent) or not reported (17 percent).

Chart 5.5 Employees added in 2016

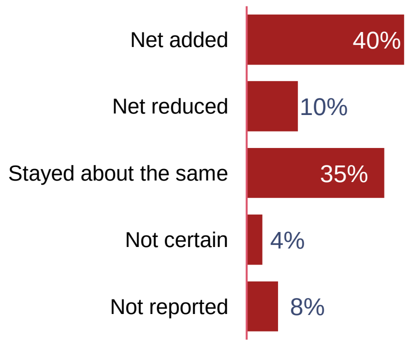
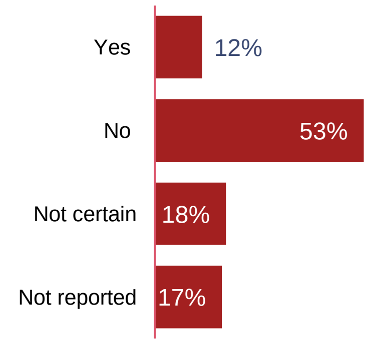


Chart 5.6 Unable to fill open positions in 2016



Top opportunities

Which of the following do you believe are top opportunities that your company will pursue in 2017 to achieve its corporate objectives?

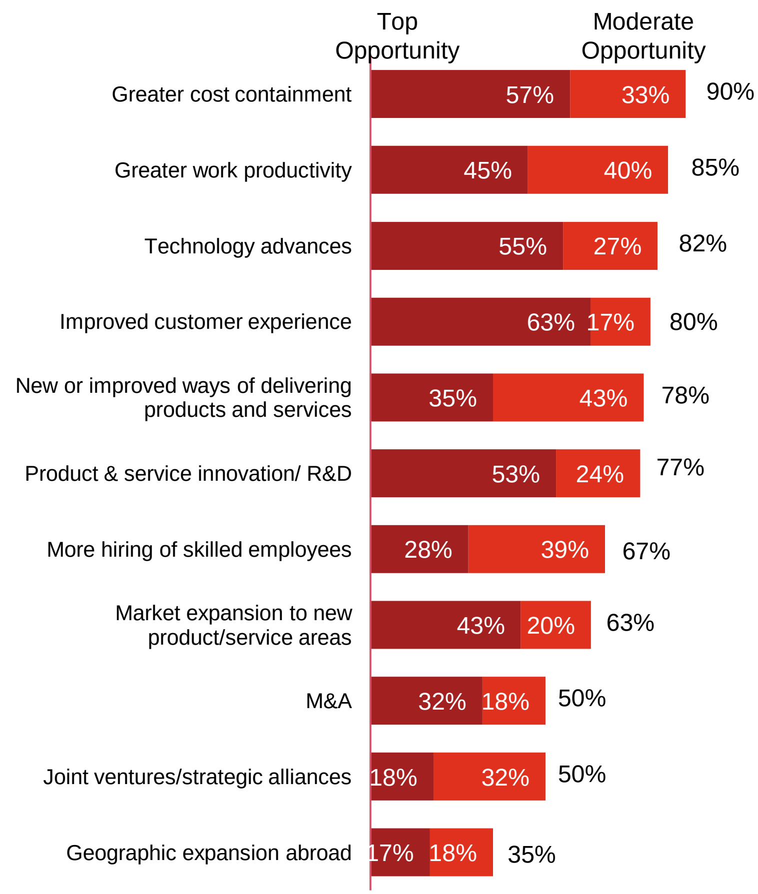
What level of importance to you place on each of these opportunities—one of our top opportunities, a moderate opportunity, or a minor or limited opportunity?

Six top opportunities that industrial manufacturers will pursue in 2017 to achieve their corporate objectives are:

(1)	Improve customer experience	63%
(2)	Technology advances	55%
(3)	Greater cost containment	57%
(4)	Product and service innovation	53%
(5)	Greater work productivity	45%
(6)	Market expansion to new products and services	43%

Secondary strength was also high for "new or improved ways of delivering products and services"… 35%, top opportunity, and 43% moderate opportunity.

Chart 5.7 Top opportunities companies will pursue in 2017 to achieve their corporate objectives



Survey demographics and research methodology

Demographics

Who	Senior executives of US-based industrial manufacturing organizations
Interview dates	October 1, 2016 to December 20, 2016
	Industrial manufacturers (60)
Average number of employees at location	7,197
Average business unit revenue	$2.59 billion
Average enterprise revenue	$7.14 billion
Market capitalization	$9.97 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*.

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