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April 2017 Manufacturing ISM® Report On Business®

PMI® at 54.8%

New Orders, Production and Employment Growing  
Supplier Deliveries Slowing  
Inventories Growing

(Tempe, Arizona) — Economic activity in the manufacturing sector expanded in April, and the overall economy grew for the 95th consecutive month, say the nation's supply executives in the latest Manufacturing ISM® Report On Business®.

The report was issued today by Bradley J. Holcomb, CPSM, CPSD, Chair of the Institute for Supply Management® (ISM®) Manufacturing Business Survey Committee: "The April PMI® registered 54.8 percent, a decrease of 2.4 percentage points from the March reading of 57.2 percent. The New Orders Index registered 57.5 percent, a decrease of 7 percentage points from the March reading of 64.5 percent. The Production Index registered 58.6 percent, 1 percentage point higher than the March reading of 57.6 percent. The Employment Index registered 52 percent, a decrease of 6.9 percentage points from the March reading of 58.9 percent. Inventories of raw materials registered 51 percent, an increase of 2 percentage points from the March reading of 49 percent. The Prices Index registered 68.5 percent in April, a decrease of 2 percentage points from the March reading of 70.5 percent, indicating higher raw materials prices for the 14th consecutive month, but at a slower rate of increase in April compared with March. Comments from the panel generally reflect stable to growing business conditions; with new orders, production, employment and inventories of raw materials all growing in April over March."

Of the 18 manufacturing industries, 16 reported growth in April in the following order: Electrical Equipment, Appliances & Components; Textile Mills; Nonmetallic Mineral Products; Furniture & Related Products; Plastics & Rubber Products; Fabricated Metal Products; Printing & Related Support Activities; Machinery; Paper Products; Chemical Products; Food, Beverage & Tobacco Products; Primary Metals; Miscellaneous Manufacturing; Computer & Electronic Products; Petroleum & Coal Products; and

Transportation Equipment. The only industry that reported contraction in April compared to March is Apparel, Leather & Allied Products.

#### WHAT RESPONDENTS ARE SAYING ...

"For [the] first time in a long time, revenue was up in Q1 year-over-year. Our customers' businesses are starting to show sustained health." (Apparel, Leather & Allied Products)

"Seeing increased orders and new projects." (Chemical Products)

"Bookings are slow; however, we did receive a very large government order." (Computer & Electronic Products)

"Business is definitely improving. Profit margins are increasing." (Fabricated Metal Products)

"Ongoing market strength. While world/political headlines cause personal anxiety, business conditions remain solid." (Miscellaneous Manufacturing)

"The poultry market continues to be stronger than anticipated." (Food, Beverage & Tobacco Products)

"Continuing to source more raw materials locally and reduce exposure outside U.S." (Machinery)

"Military and government spending is remaining strong. Commercial business has been flat to slightly down." (Transportation Equipment)

"Our business and outlook are [strong]. We are seeing price increases from suppliers in many categories." (Plastics & Rubber Products)

"Business is solid. Pricing pressures on commodities." (Furniture & Related Products)

MANUFACTURING AT A GLANCE						
April 2017						
Index	Series Index Apr	Series Index Mar	Percentage Point Change	Direction	Rate of Change	Trend* (Months)
PMI®	54.8	57.2	-2.4	Growing	Slower	8
New Orders	57.5	64.5	-7.0	Growing	Slower	8
Production	58.6	57.6	+1.0	Growing	Faster	8
Employment	52.0	58.9	-6.9	Growing	Slower	7
Supplier Deliveries	55.1	55.9	-0.8	Slowing	Slower	12
Inventories	51.0	49.0	+2.0	Growing	From Contracting	1
Customers' Inventories	45.5	47.0	-1.5	Too Low	Faster	7
Prices	68.5	70.5	-2.0	Increasing	Slower	14
Backlog of Orders	57.0	57.5	-0.5	Growing	Slower	3
New Export Orders	59.5	59.0	+0.5	Growing	Faster	14
Imports	55.5	53.5	+2.0	Growing	Faster	3
OVERALL ECONOMY				Growing	Slower	95
Manufacturing Sector				Growing	Slower	8

Manufacturing ISM® Report On Business® data is seasonally adjusted for the New Orders, Production, Employment and Supplier Deliveries Indexes.

\*Number of months moving in current direction.

#### COMMODITIES REPORTED UP/DOWN IN PRICE AND IN SHORT SUPPLY

##### Commodities Up in Price

Aluminum (6); Copper (6); Corrugate (7); Corrugated Boxes (2); Diesel; Gasoline; HDPE (2); Lumber; Oil; Plastic Resin (2); Polypropylene (3); Resin-based Products; Rubber — Natural (3); Scrap Metal (3); Stainless Steel (13); Steel (16); Steel — Cold Rolled (6); Steel — Hot Rolled (5); Steel Tubing (3); and Titanium Dioxide (5).

#### Commodities Down in Price

None.

#### Commodities in Short Supply

Electronic Components (2); and Titanium Dioxide.

Note: The number of consecutive months the commodity is listed is indicated after each item.

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### APRIL 2017 MANUFACTURING INDEX SUMMARIES

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#### PMI®

Manufacturing expanded in April as the PMI® registered 54.8 percent, a decrease of 2.4 percentage points from the March reading of 57.2 percent, indicating growth in manufacturing for the eighth consecutive month. A reading above 50 percent indicates that the manufacturing economy is generally expanding; below 50 percent indicates that it is generally contracting.

A PMI® above 43.3 percent, over a period of time, generally indicates an expansion of the overall economy. Therefore, the April PMI® indicates growth for the 95th consecutive month in the overall economy and the eighth straight month of growth in the manufacturing sector. Holcomb stated, "The past relationship between the PMI® and the overall economy indicates that the average PMI® for January through April (56.4 percent) corresponds to a 4.1 percent increase in real gross domestic product (GDP) on an annualized basis. In addition, if the PMI® for April (54.8 percent) is annualized, it corresponds to a 3.6 percent increase in real GDP annually."

## THE LAST 12 MONTHS

Month	PMI®	Month	PMI®
Apr 2017	54.8	Oct 2016	52.0
Mar 2017	57.2	Sep 2016	51.7
Feb 2017	57.7	Aug 2016	49.4
Jan 2017	56.0	Jul 2016	52.3
Dec 2016	54.5	Jun 2016	52.8
Nov 2016	53.5	May 2016	51.0
Average for 12 months – 53.6			
High – 57.7			
Low – 49.4			

## New Orders

ISM®'s New Orders Index registered 57.5 percent in April, which is a decrease of 7 percentage points when compared to the 64.5 percent reported for March, indicating growth in new orders for the eighth consecutive month. A New Orders Index above 52.3 percent, over time, is generally consistent with an increase in the Census Bureau's series on manufacturing orders (in constant 2000 dollars).

Sixteen of 18 industries reported growth in new orders in April, listed in the following order: Furniture & Related Products; Nonmetallic Mineral Products; Textile Mills; Apparel, Leather & Allied Products; Machinery; Fabricated Metal Products; Miscellaneous Manufacturing; Printing & Related Support Activities; Chemical Products; Primary Metals; Plastics & Rubber Products; Transportation Equipment; Paper Products; Petroleum & Coal Products; Computer & Electronic Products; and Food, Beverage & Tobacco Products. No industry reported contraction in new orders in April compared to March.

New Orders	% Better	% Same	% Worse	Net	Index
Apr 2017	38	51	11	+27	57.5
Mar 2017	45	45	10	+35	64.5
Feb 2017	42	48	10	+32	65.1
Jan 2017	32	52	16	+16	60.4

## Production

ISM®'s Production Index registered 58.6 percent in April, which is an increase of 1 percentage point when compared to the 57.6 percent reported for March, indicating growth in production for the eighth consecutive month. An index above 51.4 percent, over time, is generally consistent with an increase in the Federal Reserve Board's Industrial Production figures.

The 17 industries reporting growth in production during the month of April — listed in order — are: Furniture & Related Products; Nonmetallic Mineral Products; Textile Mills; Apparel, Leather & Allied Products; Plastics & Rubber Products; Machinery; Primary Metals; Miscellaneous Manufacturing; Paper Products; Printing & Related Support Activities; Fabricated Metal Products; Chemical Products; Electrical Equipment, Appliances & Components; Transportation Equipment; Computer & Electronic Products; Food, Beverage & Tobacco Products; and Petroleum & Coal Products. No industry reported a decrease in production in April compared to March.

	%	%	%		
Production	Better	Same	Worse	Net	Index
Apr 2017	39	53	8	+31	58.6
Mar 2017	34	53	13	+21	57.6
Feb 2017	37	53	10	+27	62.9
Jan 2017	32	50	18	+14	61.4

## Employment

ISM®'s Employment Index registered 52 percent in April, a decrease of 6.9 percentage points when compared to the March reading of 58.9 percent, indicating growth in employment in April for the seventh consecutive month. An Employment Index above 50.5 percent, over time, is generally consistent with an increase in the Bureau of Labor Statistics (BLS) data on manufacturing employment.

Of the 18 manufacturing industries, the 12 reporting employment growth in April — listed in order — are: Electrical Equipment, Appliances & Components; Furniture & Related Products; Printing & Related Support Activities; Nonmetallic Mineral Products; Food, Beverage & Tobacco Products; Paper Products; Plastics & Rubber Products; Fabricated Metal Products; Computer & Electronic Products; Primary Metals; Machinery; and Miscellaneous Manufacturing. The four industries reporting a decrease in employment in April are: Apparel, Leather & Allied Products; Petroleum & Coal Products; Transportation Equipment; and Chemical Products.

Employment	% Higher	% Same	% Lower	Net	Index
Apr 2017	24	63	13	+11	52.0
Mar 2017	27	62	11	+16	58.9
Feb 2017	21	66	13	+8	54.2
Jan 2017	21	66	13	+8	56.1

### Supplier Deliveries

The delivery performance of suppliers to manufacturing organizations was slower in April, as the Supplier Deliveries Index registered 55.1 percent, which is 0.8 percentage point lower than the 55.9 percent reported for March. A reading below 50 percent indicates faster deliveries, while a reading above 50 percent indicates slower deliveries.

The 12 industries reporting slower supplier deliveries in April — listed in order — are: Textile Mills; Electrical Equipment, Appliances & Components; Plastics & Rubber Products; Petroleum & Coal Products; Machinery; Food, Beverage & Tobacco Products; Nonmetallic Mineral Products; Fabricated Metal Products; Computer & Electronic Products; Chemical Products; Transportation Equipment; and Primary Metals. The two industries reporting faster supplier deliveries in April compared to March are: Wood Products; and Apparel, Leather & Allied Products.

Supplier Deliveries	% Slower	% Same	% Faster	Net	Index
Apr 2017	17	79	4	+13	55.1
Mar 2017	16	81	3	+13	55.9
Feb 2017	16	79	5	+11	54.8
Jan 2017	12	84	4	+8	53.6

### Inventories\*

The Inventories Index registered 51 percent in April, which is an increase of 2 percentage points when compared to the 49 percent reported for March, indicating raw materials inventories are growing in April. An Inventories Index greater than 42.9 percent, over time, is generally consistent with expansion in the Bureau of Economic Analysis (BEA) figures on overall manufacturing inventories (in chained 2000 dollars).

The seven industries reporting higher inventories in April — listed in order — are: Electrical Equipment, Appliances & Components; Textile Mills; Wood Products; Nonmetallic Mineral Products; Chemical Products; Food, Beverage & Tobacco Products; and Paper Products. The nine industries reporting lower

inventories in April — listed in order — are: Apparel, Leather & Allied Products; Furniture & Related Products; Machinery; Plastics & Rubber Products; Transportation Equipment; Computer & Electronic Products; Fabricated Metal Products; Primary Metals; and Printing & Related Support Activities.

Inventories	% Higher	% Same	% Lower	Net	Index
Apr 2017	19	64	17	+2	51.0
Mar 2017	18	62	20	-2	49.0
Feb 2017	19	65	16	+3	51.5
Jan 2017	18	61	21	-3	48.5

#### Customers' Inventories\*

ISM®'s Customers' Inventories Index registered 45.5 percent in April, which is 1.5 percentage points lower than the 47 percent reported for March, indicating that customers' inventory levels are considered too low in April for the seventh consecutive month.

The four manufacturing industries reporting customers' inventories as being too high during the month of April are: Miscellaneous Manufacturing; Computer & Electronic Products; Food, Beverage & Tobacco Products; and Chemical Products. The eight industries reporting customers' inventories as too low during April — listed in order — are: Textile Mills; Apparel, Leather & Allied Products; Nonmetallic Mineral Products; Transportation Equipment; Primary Metals; Machinery; Plastics & Rubber Products; and Fabricated Metal Products.

Customers' Inventories	% Reporting	% Too High	% About Right	% Too Low	Net	Index
Apr 2017	54	9	73	18	-9	45.5
Mar 2017	53	14	66	20	-6	47.0
Feb 2017	53	15	65	20	-5	47.5
Jan 2017	58	13	71	16	-3	48.5

#### Prices\*

The ISM® Prices Index registered 68.5 percent in April, a decrease of 2 percentage points when compared to the March reading of 70.5 percent, indicating an increase in raw materials prices for the 14th consecutive month. In April, 44 percent of respondents reported paying higher prices, 7 percent reported paying lower prices, and 49 percent of supply executives reported paying the same prices as in March. A Prices Index above 52.4 percent, over time, is generally consistent with an increase in the Bureau of Labor Statistics (BLS) Producer Price Index for Intermediate Materials.



Of the 18 manufacturing industries, the 16 that reported paying increased prices for its raw materials in April — listed in order — are: Textile Mills; Electrical Equipment, Appliances & Components; Plastics & Rubber Products; Nonmetallic Mineral Products; Machinery; Apparel, Leather & Allied Products; Chemical Products; Primary Metals; Miscellaneous Manufacturing; Petroleum & Coal Products; Paper Products; Transportation Equipment; Fabricated Metal Products; Furniture & Related Products; Computer & Electronic Products; and Food, Beverage & Tobacco Products. No industry reported paying lower prices during the month of April compared to March.

Prices	% Higher	% Same	% Lower	Net	Index
Apr 2017	44	49	7	+37	68.5
Mar 2017	47	47	6	+41	70.5
Feb 2017	41	54	5	+36	68.0
Jan 2017	44	50	6	+38	69.0

**Backlog of Orders\***

ISM®'s Backlog of Orders Index registered 57 percent in April, a decrease of 0.5 percentage point from the 57.5 percent reported for March, indicating growth in order backlogs for the third consecutive month. Of the 88 percent of respondents who reported their backlog of orders, 29 percent reported greater backlogs, 15 percent reported smaller backlogs, and 56 percent reported no change from March.

The 14 industries reporting growth in order backlogs in April — listed in order — are: Textile Mills; Nonmetallic Mineral Products; Furniture & Related Products; Primary Metals; Petroleum & Coal Products; Plastics & Rubber Products; Machinery; Chemical Products; Paper Products; Fabricated Metal Products; Food, Beverage & Tobacco Products; Computer & Electronic Products; Transportation Equipment; and Miscellaneous Manufacturing. The two industries reporting a decrease in order backlogs during April are: Apparel, Leather & Allied Products; and Electrical Equipment, Appliances & Components.

Backlog of Orders	% Reporting	% Greater	% Same	% Less	Net	Index
Apr 2017	88	29	56	15	+14	57.0
Mar 2017	89	27	61	12	+15	57.5
Feb 2017	88	26	62	12	+14	57.0
Jan 2017	89	21	57	22	-1	49.5

#### New Export Orders\*

ISM®'s New Export Orders Index registered 59.5 percent in April, an increase of 0.5 percentage point when compared to the 59 percent reported for March, indicating growth in new export orders for the 14th consecutive month. This is the highest reading since November 2013, when the index also registered 59.5 percent.

The 13 industries reporting growth in new export orders in April — listed in order — are: Apparel, Leather & Allied Products; Wood Products; Nonmetallic Mineral Products; Fabricated Metal Products; Machinery; Furniture & Related Products; Plastics & Rubber Products; Electrical Equipment, Appliances & Components; Chemical Products; Miscellaneous Manufacturing; Computer & Electronic Products; Transportation Equipment; and Food, Beverage & Tobacco Products. The only industry reporting a decrease in new export orders during April is Primary Metals.

New Export Orders	% Reporting	% Higher	% Same	% Lower	Net	Index
Apr 2017	78	25	69	6	+19	59.5
Mar 2017	78	23	72	5	+18	59.0
Feb 2017	80	16	78	6	+10	55.0
Jan 2017	80	15	79	6	+9	54.5

#### Imports\*

ISM®'s Imports Index registered 55.5 percent in April, an increase of 2 percentage points when compared to the 53.5 percent reported for March, indicating that imports are growing in April for the third consecutive month.

The nine industries reporting growth in imports during the month of April — listed in order — are: Apparel, Leather & Allied Products; Transportation Equipment; Electrical Equipment, Appliances & Components; Furniture & Related Products; Computer & Electronic Products; Chemical Products; Machinery; Plastics & Rubber Products; and Fabricated Metal Products. The three industries reporting a decrease in imports during April are: Primary Metals; Textile Mills; and Paper Products.

Imports	% Reporting	% Higher	% Same	% Lower	Net	Index
Apr 2017	82	15	81	4	+11	55.5
Mar 2017	81	15	77	8	+7	53.5
Feb 2017	83	14	80	6	+8	54.0
Jan 2017	81	11	78	11	0	50.0

\* The Inventories, Customers' Inventories, Prices, Backlog of Orders, New Export Orders and Imports Indexes do not meet the accepted criteria for seasonal adjustments.

#### Buying Policy

Average commitment lead time for Capital Expenditures increased in April by 6 days to 146 days. Average lead time for Production Materials increased by 1 day to 60 days. Average lead time for Maintenance, Repair and Operating (MRO) Supplies increased by 2 days to 33 days.

Percent Reporting							
Capital Expenditures	Hand-to-Mouth	30 Days	60 Days	90 Days	6 Months	1 Year+	Average Days
Apr 2017	20	8	12	16	21	23	146
Mar 2017	20	7	11	17	26	19	140
Feb 2017	19	7	11	18	26	19	141
Jan 2017	19	8	12	16	26	19	140
Production Materials	Hand-to-Mouth	30 Days	60 Days	90 Days	6 Months	1 Year+	Average Days
Apr 2017	13	36	25	19	5	2	60
Mar 2017	15	37	26	15	4	3	59
Feb 2017	16	34	27	15	5	3	61
Jan 2017	14	33	26	17	7	3	65
MRO Supplies	Hand-to-Mouth	30 Days	60 Days	90 Days	6 Months	1 Year+	Average Days
Apr 2017	39	34	18	7	2	0	33
Mar 2017	38	40	12	9	1	0	31
Feb 2017	36	39	17	6	2	0	33
Jan 2017	34	43	16	6	1	0	31

About This Report

DO NOT CONFUSE THIS NATIONAL REPORT with the various regional purchasing reports released across the country. The national report's information reflects the entire United States, while the regional reports contain primarily regional data from their local vicinities. Also, the information in the regional reports is not used in calculating the results of the national report. The information compiled in this report is for the month of April 2017.

The data presented herein is obtained from a survey of manufacturing supply executives based on information they have collected within their respective organizations. ISM® makes no representation, other than that stated within this release, regarding the individual company data collection procedures. The data should be compared to all other economic data sources when used in decision-making.

#### Data and Method of Presentation

The Manufacturing ISM® Report On Business® is based on data compiled from purchasing and supply executives nationwide. Membership of the Manufacturing Business Survey Committee is diversified by NAICS, based on each industry's contribution to gross domestic product (GDP). Manufacturing Business Survey Committee responses are divided into the following NAICS code categories: Food, Beverage & Tobacco Products; Textile Mills; Apparel, Leather & Allied Products; Wood Products; Paper Products; Printing & Related Support Activities; Petroleum & Coal Products; Chemical Products; Plastics & Rubber Products; Nonmetallic Mineral Products; Primary Metals; Fabricated Metal Products; Machinery; Computer & Electronic Products; Electrical Equipment, Appliances & Components; Transportation Equipment; Furniture & Related Products; and Miscellaneous Manufacturing (products such as medical equipment and supplies, jewelry, sporting goods, toys and office supplies).

Survey responses reflect the change, if any, in the current month compared to the previous month. For each of the indicators measured (New Orders, Backlog of Orders, New Export Orders, Imports, Production, Supplier Deliveries, Inventories, Customers' Inventories, Employment and Prices), this report shows the percentage reporting each response, the net difference between the number of responses in the positive economic direction (higher, better and slower for Supplier Deliveries) and the negative economic direction (lower, worse and faster for Supplier Deliveries), and the diffusion index. Responses are raw data and are never changed. The diffusion index includes the percent of positive responses plus one-half of those responding the same (considered positive).

The resulting single index number for those meeting the criteria for seasonal adjustments (PMI®, New Orders, Production, Employment and Supplier Deliveries) is then seasonally adjusted to allow for the effects of repetitive intra-year variations resulting primarily from normal differences in weather conditions, various institutional arrangements, and differences attributable to non-moveable holidays. All seasonal adjustment factors are subject annually to relatively minor changes when conditions warrant them. The PMI® is a composite index based on the diffusion indexes of five of the indexes with equal weights: New Orders (seasonally adjusted), Production (seasonally adjusted), Employment (seasonally adjusted), Supplier Deliveries (seasonally adjusted), and Inventories.

Diffusion indexes have the properties of leading indicators and are convenient summary measures showing the prevailing direction of change and the scope of change. A PMI® reading above 50 percent indicates that the manufacturing economy is generally expanding; below 50 percent indicates that it is generally declining. A PMI® above 43.3 percent, over a period of time, indicates that the overall economy, or gross domestic product (GDP), is generally expanding; below 43.3 percent, it is generally declining. The distance from 50 percent or 43.3 percent is indicative of the strength of the expansion or decline. With some of the indicators within this report, ISM® has indicated the departure point between expansion and decline of comparable government series, as determined by regression analysis.

The Manufacturing ISM® Report On Business® survey is sent out to Manufacturing Business Survey Committee respondents the first part of each month. Respondents are asked to ONLY report on information for the current month. ISM® receives survey responses throughout most of any given month, with the majority of respondents generally waiting until late in the month to submit responses in order to give the most accurate picture of current business activity. ISM® then compiles the report for release on the first business day of the following month.

The industries reporting growth, as indicated in the Manufacturing ISM® Report On Business® monthly report, are listed in the order of most growth to least growth. For the industries reporting contraction or decreases, those are listed in the order of the highest level of contraction/decrease to the least level of contraction/decrease.

Responses to Buying Policy reflect the percent reporting the current month's lead time, the approximate weighted number of days ahead for which commitments are made for Capital Expenditures; Production Materials; and Maintenance, Repair and Operating (MRO) Supplies, expressed as hand-to-mouth (five days), 30 days, 60 days, 90 days, six months (180 days), a year or more (360 days), and the weighted average number of days. These responses are raw data, never revised, and not seasonally adjusted since there is no significant seasonal pattern.

#### ISM ROB Content

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#### About Institute for Supply Management®

Institute for Supply Management® (ISM®) serves supply management professionals in more than 90 countries. Its 50,000 members around the world manage about US\$1 trillion in corporate and government supply chain procurement annually. Founded in 1915 as the first supply management institute in the world, ISM is committed to advancing the practice of supply management to drive value and competitive advantage for its members, contributing to a prosperous and sustainable world. ISM leads the profession through the ISM Report On Business®, its highly regarded certification programs and the newly launched ISM Mastery Model®. This report has been issued by the association since 1931, except for a four-year interruption during World War II.

The full text version of the Manufacturing ISM® Report On Business® is posted on ISM®'s website at [www.ismrob.org](http://www.ismrob.org) on the first business day\* of every month after 10:00 a.m. (ET).

The next Manufacturing ISM® Report On Business® featuring the May 2017 data will be released at 10:00 a.m. (ET) on Thursday, June 1, 2017.

The next Semiannual Economic Forecast will be released May 22, 2017 at 10:00 a.m. ET at the ISM2017 Annual International Supply Management Conference in Orlando, Florida.

\*Unless the NYSE is closed.