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Contact: Kristina Cahill

Report On Business® Analyst ISM®, ROB/Research Manager

Tempe, Arizona

480-752-6276, Ext. 3015

E-mail: kcahill@instituteforsupplymanagement.org

May 2017 Manufacturing ISM® Report On Business®

# **PMI® at 54.9%**

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New Orders, Inventories and Employment Growing Supplier Deliveries Slowing Prices Increasing

(Tempe, Arizona) — Economic activity in the manufacturing sector expanded in May, and the overall economy grew for the 96th consecutive month, say the nation's supply executives in the latest Manufacturing ISM® Report On Business®.

The report was issued today by Timothy R. Fiore, CPSM, C.P.M., Chair of the Institute for Supply Management® (ISM®) Manufacturing Business Survey Committee: "The May PMI® registered 54.9 percent, an increase of 0.1 percentage point from the April reading of 54.8 percent. The New Orders Index registered 59.5 percent, an increase of 2 percentage points from the April reading of 57.5 percent. The Production Index registered 57.1 percent, a 1.5 percentage points decrease compared to the April reading of 58.6 percent. The Employment Index registered 53.5 percent, an increase of 1.5 percentage points from the April reading of 52 percent. The Inventories Index registered 51.5 percent, an increase of 0.5 percentage point from the April reading of 51 percent. The Prices Index registered 60.5 percent in May, a decrease of 8 percentage points from the April reading of 68.5 percent, indicating higher raw materials prices for the 15th consecutive month, but at a noticeably slower rate of increase in May compared with April. Comments from the panel generally reflect stable to growing business conditions, with new orders, employment and inventories of raw materials all growing in May compared to April. The slowing of pricing pressure, especially in basic commodities, should have a positive impact on margins and buying policies as this moderation moves up the value chain."

Of the 18 manufacturing industries, 15 reported growth in May in the following order: Nonmetallic Mineral Products; Furniture & Related Products; Plastics & Rubber Products; Machinery; Primary Metals; Food, Beverage & Tobacco Products; Electrical Equipment, Appliances & Components; Paper Products; Miscellaneous Manufacturing; Computer & Electronic Products; Transportation Equipment; Chemical Products; Fabricated Metal Products; Petroleum & Coal Products; and Printing & Related Support Activities. Two industries reported contraction in May compared to April: Apparel, Leather & Allied Products; and Textile Mills.

#### WHAT RESPONDENTS ARE SAYING ...

- "Sales have picked up compared to the last two months. Customer demand has increased." (Plastics & Rubber Products)
- "Economy is still strong, but [the] political climate can change things very quickly." (Transportation Equipment)
- "Global price increases for commodities." (Electrical Equipment, Appliances & Components)
- "Business (sales/production) is steady. Pricing pressures on raw materials. Skilled labor in short supply." (Furniture & Related Products)
- "Agricultural demand very strong." (Chemical Products)
- "Our business is definitely paying attention to developments with the Canadian lumber tariff announcement. The final outcome could change our fiber pricing." (Paper Products)
- "OEM longer lead parts possibly longer lead time due to more orders." (Nonmetallic Mineral Products)
- "Business conditions are steady, and with competition increasing, it's making negotiations even more intense to reduce costs." (Machinery)
- "Business is booming, and getting direct employees is increasingly difficult." (Fabricated Metal Products)

"Difficult to find qualified labor for factory positions." (Food, Beverage & Tobacco Products)

MANUFACTURING AT A GLANCE May 2017										
Series Series Percentage Rate Index Index Point of Trend*										
Index	May	Apr	Change	Direction	Change	(Months)				
PMI®	54.9	54.8	+0.1	Growing	Faster	9				
New Orders	59.5	57.5	+2.0	Growing	Faster	9				

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Production	57.1	58.6	-1.5	Growing	Slower	9
Employment	53.5	52.0	+1.5	Growing	Faster	8
Supplier Deliveries	53.1	55.1	-2.0	Slowing	Slower	13
Inventories	51.5	51.0	+0.5	Growing	Faster	2
Customers' Inventories	49.5	45.5	+4.0	Too Low	Slower	8
Prices	60.5	68.5	-8.0	Increasing	Slower	15
Backlog of Orders	55.0	57.0	-2.0	Growing	Slower	4
New Export Orders	57.5	59.5	-2.0	Growing	Slower	15
Imports	53.5	55.5	-2.0	Growing	Slower	4
OVERALL ECONOMY				Growing	Faster	96
Manufacturing Sector	Growing	Faster	9			

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

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

Commodities Up in Price

Aluminum (7); Corrugate (8); Corrugated Boxes (3); Lumber (2); Oil (2); Plastic Resin (3); Polypropylene (4); Rubber; Scrap Metal (4); Steel\* (17); Steel — Cold Rolled (7); Steel — Hot Rolled (6); and Steel Tubing (4).

Commodities Down in Price

Butadiene; Copper; Methanol; Nickel; and Steel\*.

Commodities in Short Supply

Capacitors; Electronic Components (3); and Methacrylates.

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

\*Indicates both up and down in price.

<sup>\*</sup>Number of months moving in current direction.

#### MAY 2017 MANUFACTURING INDEX SUMMARIES

#### **PMI®**

Manufacturing expanded in May as the PMI® registered 54.9 percent, an increase of 0.1 percentage point from the April reading of 54.8 percent, indicating growth in manufacturing for the ninth 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 May PMI® indicates growth for the 96th consecutive month in the overall economy and the ninth straight month of growth in the manufacturing sector. Fiore stated, "The past relationship between the PMI® and the overall economy indicates that the average PMI® for January through May (56.1 percent) corresponds to a 4.0 percent increase in real gross domestic product (GDP) on an annualized basis. In addition, if the PMI® for May (54.9 percent) is annualized, it corresponds to a 3.7 percent increase in real GDP annually."

#### THE LAST 12 MONTHS

May 2017       54.9       Nov 2016       53.5         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	Month	PMI®	Month	PMI®
Mar 2017 57.2 Sep 2016 51.7 Feb 2017 57.7 Aug 2016 49.4 Jan 2017 56.0 Jul 2016 52.3	May 2017	54.9	Nov 2016	53.5
Feb 2017 57.7 Aug 2016 49.4  Jan 2017 56.0 Jul 2016 52.3	Apr 2017	54.8	Oct 2016	52.0
Jan 2017 56.0 Jul 2016 52.3	Mar 2017	57.2	Sep 2016	51.7
	Feb 2017	57.7	Aug 2016	49.4
Dec 2016   54.5   Jun 2016   52.8	Jan 2017	56.0	Jul 2016	52.3
	Dec 2016	54.5	Jun 2016	52.8

Average for 2017 – 56.1

Average for 12 months – 53.9

High - 57.7

Low - 49.4

#### **New Orders**

ISM®'s New Orders Index registered 59.5 percent in May, which is an increase of 2 percentage points when compared to the 57.5 percent reported for April, indicating growth in new orders for the ninth consecutive month. New orders returned to the higher (near 60)

levels since experienced in December 2016. 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).

Fourteen of 18 industries reported growth in new orders in May, listed in the following order: Paper Products; Primary Metals; Machinery; Nonmetallic Mineral Products; Chemical Products; Fabricated Metal Products; Food, Beverage & Tobacco Products; Printing & Related Support Activities; Furniture & Related Products; Electrical Equipment, Appliances & Components; Petroleum & Coal Products; Plastics & Rubber Products; Computer & Electronic Products; and Transportation Equipment. The only industry reporting a decrease in new orders in May compared to April is Apparel, Leather & Allied Products.

New	%	%	%		
Orders	Better	Same	Worse	Net	Index
May 2017	34	57	9	+25	59.5
Apr 2017	38	51	11	+27	57.5
Mar 2017	45	45	10	+35	64.5
Feb 2017	42	48	10	+32	65.1

#### Production

ISM®'s Production Index registered 57.1 percent in May, which is a decrease of 1.5 percentage points when compared to the 58.6 percent reported for April, indicating growth in production for the ninth 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 14 industries reporting growth in production during the month of May — listed in order — are: Plastics & Rubber Products; Nonmetallic Mineral Products; Primary Metals; Furniture & Related Products; Paper Products; Fabricated Metal Products; Printing & Related Support Activities; Chemical Products; Electrical Equipment, Appliances & Components; Miscellaneous Manufacturing; Machinery; Transportation Equipment; Food, Beverage & Tobacco Products; and Computer & Electronic Products. The only industry reporting a decrease in production in May compared to April is Apparel, Leather & Allied Products.

	%	%	%		
Production	Better	Same	Worse	Net	Index

May 2017	31	57	12	+19	57.1
Apr 2017	39	53	8	+31	58.6
Mar 2017	34	53	13	+21	57.6
Feb 2017	37	53	10	+27	62.9

# **Employment**

ISM®'s Employment Index registered 53.5 percent in May, an increase of 1.5 percentage points when compared to the April reading of 52 percent, indicating growth in employment in May for the eighth consecutive month. Employment levels have been expanding since October 2016, and the search for qualified workers (as mentioned by multiple respondents) has become more difficult. 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 11 reporting employment growth in May — listed in order — are: Furniture & Related Products; Nonmetallic Mineral Products; Electrical Equipment, Appliances & Components; Miscellaneous Manufacturing; Computer & Electronic Products; Food, Beverage & Tobacco Products; Machinery; Paper Products; Primary Metals; Petroleum & Coal Products; and Plastics & Rubber Products. The five industries reporting a decrease in employment in May are: Textile Mills; Apparel, Leather & Allied Products; Fabricated Metal Products; Chemical Products; and Transportation Equipment.

	%	%	%		
Employment	Higher	Same	Lower	Net	Index
May 2017	23	65	12	+11	53.5
Apr 2017	24	63	13	+11	52.0
Mar 2017	27	62	11	+16	58.9
Feb 2017	21	66	13	+8	54.2

# **Supplier Deliveries**

The delivery performance of suppliers to manufacturing organizations was slower in May, as the Supplier Deliveries Index registered 53.1 percent, which is 2 percentage points lower than the 55.1 percent reported for April. This is the 13th straight month of slowing supplier

deliveries, indicating supply chains are adjusting to increased demand levels. A reading below 50 percent indicates faster deliveries, while a reading above 50 percent indicates slower deliveries.

The 11 industries reporting slower supplier deliveries in May — listed in order — are: Nonmetallic Mineral Products; Plastics & Rubber Products; Furniture & Related Products; Electrical Equipment, Appliances & Components; Petroleum & Coal Products; Computer & Electronic Products; Chemical Products; Fabricated Metal Products; Machinery; Food, Beverage & Tobacco Products; and Transportation Equipment. Six industries reported no change in supplier deliveries in May compared to April. No industries reported faster deliveries in May compared to April.

Supplier Deliveries	% Slower	% Same	% Faster	Net	Index
May 2017	13	82	5	+8	53.1
Apr 2017	17	79	4	+13	55.1
Mar 2017	16	81	3	+13	55.9
Feb 2017	16	79	5	+11	54.8

# Inventories\*

The Inventories Index registered 51.5 percent in May, which is an increase of 0.5 percentage point when compared to the 51 percent reported for April, indicating raw materials inventories are growing in May. 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 six industries reporting higher inventories in May — listed in order — are: Furniture & Related Products; Nonmetallic Mineral Products; Transportation Equipment; Miscellaneous Manufacturing; Plastics & Rubber Products; and Food, Beverage & Tobacco Products. The six industries reporting lower inventories in May — listed in order — are: Paper Products; Printing & Related Support Activities; Electrical Equipment, Appliances & Components; Primary Metals; Chemical Products; and Fabricated Metal Products. Six industries reported no change in inventory in May compared to April.

	%	%	%		
Inventories	Higher	Same	Lower	Net	Index
May 2017	18	67	15	+3	51.5

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Apr 2017	19	64	17	+2	51.0
Mar 2017	18	62	20	-2	49.0
Feb 2017	19	65	16	+3	51.5

#### Customers' Inventories\*

ISM®'s Customers' Inventories Index registered 49.5 percent in May, which is 4 percentage points higher than the 45.5 percent reported for April, indicating that customers' inventory levels are considered too low in May for the eighth consecutive month, but are approaching equilibrium.

The six manufacturing industries reporting customers' inventories as being too high during the month of May — listed in order — are: Primary Metals; Furniture & Related Products; Transportation Equipment; Food, Beverage & Tobacco Products; Chemical Products; and Computer & Electronic Products. The four industries reporting customers' inventories as too low during May are: Plastics & Rubber Products; Fabricated Metal Products; Paper Products; and Machinery. Seven industries reported no change in customer inventory levels in May compared to April.

Customers' Inventories			% About Right	%Too Low	Net	Index
May 2017	56	14	71	15	-1	49.5
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

#### Prices\*

The ISM® Prices Index registered 60.5 percent in May, a decrease of 8 percentage points when compared to the April reading of 68.5 percent, indicating an increase in raw materials prices for the 15th consecutive month. In May, 30 percent of respondents reported paying higher prices, 9 percent reported paying lower prices, and 61 percent of supply executives reported paying the same prices as in April. Fiore commented, "A review of 'Commodities Up in Price' indicates that basic commodity cost increases experienced in 2016 have made their way into higher value components, and with these costs moderating, more normal buying policies focused on supply assurance at affordable prices will be more prevalent." 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 15 that reported paying increased prices for its raw materials in May — listed in order — are: Electrical Equipment, Appliances & Components; Apparel, Leather & Allied Products; Furniture & Related Products; Miscellaneous Manufacturing; Machinery; Food, Beverage & Tobacco Products; Printing & Related Support Activities; Nonmetallic Mineral Products; Paper Products; Chemical Products; Plastics & Rubber Products; Transportation Equipment; Computer & Electronic Products; Fabricated Metal Products; and Petroleum & Coal Products. The only industry reporting paying lower prices in May compared to April is Primary Metals.

	%	%	%		
Prices	Higher	Same	Lower	Net	Index
May 2017	30	61	9	+21	60.5
Apr 2017	44	49	7	+37	68.5
Mar 2017	47	47	6	+41	70.5
Feb 2017	41	54	5	+36	68.0

# Backlog of Orders\*

ISM®'s Backlog of Orders Index registered 55 percent in May, a decrease of 2 percentage points from the 57 percent reported for April, indicating growth in order backlogs for the fourth consecutive month. Of the 90 percent of respondents who reported their backlog of orders, 23 percent reported greater backlogs, 13 percent reported smaller backlogs, and 64 percent reported no change from April.

The eight industries reporting growth in order backlogs in May — listed in order — are: Paper Products; Primary Metals; Furniture & Related Products; Fabricated Metal Products; Machinery; Plastics & Rubber Products; Computer & Electronic Products; and Transportation Equipment. The two industries reporting a decrease in order backlogs during May are: Apparel, Leather & Allied Products; and Miscellaneous Manufacturing. Eight industries reported the same level of backlog in May as compared to April.

Backlog of	%	%	%	%		
Orders	Reporting	Greater	Same	Less	Net	Index
May 2017	90	23	64	13	+10	55.0
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

# New Export Orders\*

ISM®'s New Export Orders Index registered 57.5 percent in May, a decrease of 2 percentage points when compared to the 59.5 percent reported for April, indicating growth in new export orders for the 15th consecutive month.

The 11 industries reporting growth in new export orders in May — listed in order — are: Textile Mills; Wood Products; Paper Products; Furniture & Related Products; Transportation Equipment; Food, Beverage & Tobacco Products; Primary Metals; Miscellaneous Manufacturing; Plastics & Rubber Products; Machinery; and Chemical Products. The two industries reporting a decrease in new export orders during May are: Computer & Electronic Products; and Fabricated Metal Products.

New Export Orders	% Reporting	% Higher	% Same	% Lower	Net	Index
May 2017	77	20	75	5	+15	57.5
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

#### Imports\*

ISM®'s Imports Index registered 53.5 percent in May, a decrease of 2 percentage points when compared to the 55.5 percent reported for April, indicating that imports are growing in May for the fourth consecutive month but at a slower rate.

The seven industries reporting growth in imports during the month of May — listed in order —are: Transportation Equipment; Nonmetallic Mineral Products; Furniture & Related Products; Machinery; Chemical Products; Food, Beverage & Tobacco Products; and Computer & Electronic Products. The five industries reporting a decrease in imports during May are: Primary Metals; Paper Products; Fabricated Metal Products; Plastics & Rubber Products; and Miscellaneous Manufacturing.

	%	%	%	%		
Imports	Reporting	Higher	Same	Lower	Net	Index

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# 製造業採購經理人指數(Purchasing Managers Index, PMI)

May 2017	81	12	83	5	+7	53.5
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

<sup>\*</sup> 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 remained constant in May at 146 days. Average lead time for Production Materials increased by 2 days to 62 days. Average lead time for Maintenance, Repair and Operating (MRO) Supplies increased by 2 days to 35 days.

Percent Reporting								
	Hand-							
Capital	to-	30	60	90	6	1	Average	
Expenditures	Mouth	Days	Days	Days	Months	Year+	Days	
May 2017	19	8	12	15	24	22	146	
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	
	Hand-							
Production	to-	30	60	90	6	1	Average	
Materials	Mouth	Days	Days	Days	Months	Year+	Days	
May 2017	12	37	23	20	6	2	62	
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	

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	Hand-						
MRO	to-	30	60	90	6	1	Average
Supplies	Mouth	Days	Days	Days	Months	Year+	Days
May 2017	34	39	17	7	3	0	35
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

## **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 May 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

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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.

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The full text version of the Manufacturing ISM® Report On Business® is posted on ISM®'s website at 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 June 2017 data will be released at 10:00 a.m. (ET) on Monday, July 3, 2017.

\*Unless the NYSE is closed.