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May 2019 Manufacturing ISM® Report On Business®

Choose a Section

PMI® at 52.1%

New Orders, Production, and Employment Growing;

Supplier Deliveries Slowing at a Slower Rate; Backlog Contracting

Raw Materials Inventories Growing; Customers' Inventories Too Low

Prices Increasing; Exports Growing, but Imports Contracting

(Tempe, Arizona) — Economic activity in the manufacturing sector expanded in May, and the overall economy grew for the 121st 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 52.1 percent, a decrease of 0.7 percentage point from the April reading of 52.8 percent. The New Orders Index registered 52.7 percent, an increase of 1 percentage point from the April reading of 51.7 percent. The Production Index registered 51.3 percent, a 1-percentage point decrease compared to the April reading of 52.3 percent. The Employment Index registered 53.7 percent, an increase of 1.3 percentage points from the April reading of 52.4 percent. The Supplier Deliveries Index registered 52 percent, a 2.6-percentage point decrease from the April reading of 54.6 percent. The Inventories Index registered 50.9

percent, a decrease of 2 percentage points from the April reading of 52.9 percent. The Prices Index registered 53.2 percent, a 3.2-percentage point increase from the April reading of 50 percent.

“Comments from the panel reflect continued expanding business strength, but at soft levels consistent with the early-2016 expansion. Demand expansion continued, with the New Orders Index strengthening, but remaining in the low 50s, the Customers’ Inventories Index remaining at a ‘too low’ level, and the Backlog of Orders Index contracting for the first time since January 2017. Consumption (production and employment) continued to expand, resulting in a combined PMI® contribution of 0.3 percentage point. Inputs — expressed as supplier deliveries, inventories and imports — were lower this month, primarily due to inventory softening and supplier’s continuing to deliver faster, resulting in a combined 4.6-percentage point reduction in the Supplier Deliveries and Inventories indexes. Imports contracted for the second straight month. Overall, inputs reflect supply chains’ ability to respond faster and indicate that supply managers are closely watching inventories. Prices remain at a relatively stable level.

“Respondents expressed concern with the escalation in the U.S.-China trade standoff, but overall sentiment remained predominantly positive. The PMI® continues to reflect slowing expansion,” says Fiore.

Of the 18 manufacturing industries, 11 reported growth in May, in the following order: Printing & Related Support Activities; Furniture & Related Products; Plastics & Rubber Products; Textile Mills; Miscellaneous Manufacturing; Electrical Equipment, Appliances & Components; Computer & Electronic Products; Chemical Products; Food, Beverage & Tobacco Products; Nonmetallic Mineral Products; and Machinery. The six industries reporting contraction in May — listed in order — are: Apparel, Leather & Allied Products; Primary Metals; Petroleum & Coal Products; Wood Products; Paper Products; and Fabricated Metal Products.

What respondents are saying

“Ongoing tariffs [issue is] impacting costs and influencing supplier realignment on country of origin. Border issue is causing delays in imports from Mexico.” (Computer & Electronic Products)

“The threat of additional tariffs has forced a change in our supply chain strategy; we are shifting business from China to Mexico, which will not increase the number of U.S. jobs.” (Chemical Products)

“Sales continue to decline. Volumes are off, [and] profits haven't decreased in proportion to sales. Higher-margin vehicles continue strong sales, but low- to mid-range sales are down.” (Transportation Equipment)

"Sales remain strong. Labor remains tight. Tariffs are having a significant impact on cost of goods. No impact on where we buy our goods." (Food, Beverage & Tobacco Products)

“Business is continuing to grow and expand. The pressure for driving out costs has increased significantly, and my company is facing major changes over the next several years to remain cost competitive.” (Miscellaneous Manufacturing)

“The threat of a 15-percent increase on Section 301 tariffs is a concern. Although the potential has been around for months, the recent deadline was not expected. We had calculated and communicated the potential cost impact to our leadership.” (Petroleum & Coal Products)

“Weather in the middle of the country has slowed construction and infrastructure projects.”  
(Nonmetallic Mineral Products)

“Business continues to be very strong. Our company and our supply base continue to be challenged getting manpower for production. Key commodity costs like steel have continued to come down. Lead times with suppliers have stabilized after moving out two to three times what they were a year ago. Supply base performance has improved over the last 90 days and stabilized.” (Machinery)

“Newly increased tariffs on Chinese imports pose an issue on a number of chemicals and materials that are solely produced in China. We are expecting increases in raw materials starting June 1.” (Plastics & Rubber Products)

“General slowing due to inventory correction.” (Primary Metals)

Manufacturing at a Glance  
May 2019

| Index                  | Series Index May | Series Index Apr | Percentage Point Change | Direction   | Rate of Change | Trend* (Months) |
|------------------------|------------------|------------------|-------------------------|-------------|----------------|-----------------|
| PMI®                   | 52.1             | 52.8             | -0.7                    | Growing     | Slower         | 33              |
| New Orders             | 52.7             | 51.7             | +1.0                    | Growing     | Faster         | 41              |
| Production             | 51.3             | 52.3             | -1.0                    | Growing     | Slower         | 33              |
| Employment             | 53.7             | 52.4             | +1.3                    | Growing     | Faster         | 32              |
| Supplier Deliveries    | 52.0             | 54.6             | -2.6                    | Slowing     | Slower         | 39              |
| Inventories            | 50.9             | 52.9             | -2.0                    | Growing     | Slower         | 17              |
| Customers' Inventories | 43.7             | 42.6             | +1.1                    | Too Low     | Slower         | 32              |
| Prices                 | 53.2             | 50.0             | +3.2                    | Increasing  | From Unchanged | 1               |
| Backlog of Orders      | 47.2             | 53.9             | -6.7                    | Contracting | From Growing   | 1               |
| New Export             | 51.0             | 49.5             | +1.5                    | Growing     | From           | 1               |

| Index                | Series Index<br>May | Series<br>Index Apr | Percentage Point<br>Change | Direction   | Rate of<br>Change | Trend*<br>(Months) |
|----------------------|---------------------|---------------------|----------------------------|-------------|-------------------|--------------------|
| Orders               |                     |                     |                            |             | Contracting       |                    |
| Imports              | 49.4                | 49.8                | -0.4                       | Contracting | Faster            | 2                  |
| OVERALL ECONOMY      |                     |                     |                            | Growing     | Slower            | 121                |
| Manufacturing Sector |                     |                     |                            | Growing     | Slower            | 33                 |

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\*; Dairy Products; Electronic Components (10); Integrated Circuits; Nylons; Printed Circuit Board Assemblies; Solvents; Steel\* (9); and Steel Products\*.

Commodities Down in Price

Aluminum\* (2); Caustic Soda (2); Memory; Natural Gas; Polypropylene (3); Scrap Metal; Soybean Products; Steel\*; Steel — Hot Rolled (2); and Steel Products\* (5).

Commodities in Short Supply

Aluminum Products (3); Capacitors (2); Electronic Components (13); and Integrated Circuits.

The number of consecutive months the commodity is listed is indicated after each item. \*Indicates both up and down in price.

## May 2019 Manufacturing Index Summaries

PMI®

Manufacturing expanded in May, as the PMI® registered 52.1 percent, a decrease of 0.7 percentage point from the April reading of 52.8 percent. This is the lowest reading since October 2016, when the index registered 51.7 percent. “This indicates growth in manufacturing for the 33rd consecutive month. The PMI® continued a period of expansion softening that began in August 2018. Softening this month was primarily due to inputs — supplier deliveries and inventories. Three of the big six industries

expanded,” says Fiore. 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 42.9 percent, over a period of time, generally indicates an expansion of the overall economy. Therefore, the May PMI® indicates growth for the 121st consecutive month in the overall economy and the 33rd straight month of growth in the manufacturing sector. “The past relationship between the PMI® and the overall economy indicates that the PMI® for May (52.1 percent) corresponds to a 2.7-percent increase in real gross domestic product (GDP) on an annualized basis,” says Fiore.

#### The Last 12 Months

| Month    | PMI® |
|----------|------|
| May 2019 | 52.1 |
| Apr 2019 | 52.8 |
| Mar 2019 | 55.3 |
| Feb 2019 | 54.2 |
| Jan 2019 | 56.6 |
| Dec 2018 | 54.3 |
| Month    | PMI® |
| Nov 2018 | 58.8 |
| Oct 2018 | 57.5 |
| Sep 2018 | 59.5 |
| Aug 2018 | 60.8 |
| Jul 2018 | 58.4 |
| Jun 2018 | 60.0 |

Average for 12 months - 56.7

High - 60.8

Low - 52.1

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## New Orders

ISM®'s New Orders Index registered 52.7 percent in May, which is an increase of 1 percentage point when compared to the 51.7 percent reported for April, indicating growth in new orders for the 41st consecutive month. "Customer-demand expansion strengthened marginally compared to April, with four of the top six industry sectors expanding. New order activity was relatively stable, with companies shifting from 'percentage higher' to 'percentage same,'" says Fiore. A New Orders Index above 52.5 percent, over time, is generally consistent with an increase in the Census Bureau's series on manufacturing orders (in constant 2000 dollars).

Of 18 manufacturing industries, 12 reported growth in new orders in May, in the following order: Furniture & Related Products; Printing & Related Support Activities; Plastics & Rubber Products; Computer & Electronic Products; Textile Mills; Electrical Equipment, Appliances & Components; Miscellaneous Manufacturing; Nonmetallic Mineral Products; Machinery; Chemical Products; Transportation Equipment; and Fabricated Metal Products. The four industries reporting a decline in new orders in May are: Apparel, Leather & Allied Products; Petroleum & Coal Products; Primary Metals; and Paper Products.

| New Orders | % Higher | % Same | % Lower | Net   | Index |
|------------|----------|--------|---------|-------|-------|
| May 2019   | 26.9     | 56.7   | 16.4    | +10.5 | 52.7  |
| Apr 2019   | 31.0     | 50.2   | 18.8    | +12.2 | 51.7  |
| Mar 2019   | 37.2     | 49.8   | 13.0    | +24.2 | 57.4  |
| Feb 2019   | 28.2     | 57.8   | 14.0    | +14.2 | 55.5  |

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## Production

ISM®'s Production Index registered 51.3 percent in May, which is a decrease of 1 percentage point when compared to the 52.3 percent reported for April, indicating growth in production for the 33rd consecutive month. "Production expansion continued in May, but at a slower pace compared to April. Production output was not able to improve customer-inventory positions but was able to contribute to backlog orders reaching contraction territory," says Fiore. An index above 51.7 percent, over time, is generally consistent with an increase in the Federal Reserve Board's Industrial Production figures.

The 11 industries reporting growth in production during the month of May — listed in order — are: Furniture & Related Products; Printing & Related Support Activities; Miscellaneous Manufacturing; Plastics & Rubber Products; Chemical Products; Electrical Equipment, Appliances & Components; Nonmetallic Mineral Products; Computer & Electronic Products; Food, Beverage & Tobacco Products; Fabricated Metal Products; and Transportation Equipment. The four industries reporting a decrease in

production in May are: Apparel, Leather & Allied Products; Petroleum & Coal Products; Primary Metals; and Paper Products.

| Production | % Higher | % Same | % Lower | Net   | Index |
|------------|----------|--------|---------|-------|-------|
| May 2019   | 25.4     | 54.9   | 19.7    | +5.7  | 51.3  |
| Apr 2019   | 30.4     | 51.5   | 18.1    | +12.3 | 52.3  |
| Mar 2019   | 30.8     | 54.8   | 14.4    | +16.4 | 55.8  |
| Feb 2019   | 26.0     | 59.5   | 14.5    | +11.5 | 54.8  |

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### Employment

ISM®'s Employment Index registered 53.7 percent in May, an increase of 1.3 percentage points when compared to the April reading of 52.4 percent. This indicates growth in employment in May for the 32nd consecutive month. "Employment continued to expand, and at marginally higher levels compared to April but the index recorded the single biggest gain of the five PMI® subindexes. Comments received include hiring of recent college graduates, increases in temporary labor to support seasonality, and in some cases, deferring hiring due to economic uncertainty," says Fiore. An Employment Index above 50.8 percent, over time, is generally consistent with an increase in the Bureau of Labor Statistics (BLS) data on manufacturing employment.

Eleven of 18 manufacturing industries reported employment growth in May, in the following order: Textile Mills; Printing & Related Support Activities; Furniture & Related Products; Plastics & Rubber Products; Computer & Electronic Products; Food, Beverage & Tobacco Products; Paper Products; Chemical Products; Miscellaneous Manufacturing; Electrical Equipment, Appliances & Components; and Machinery. The two industries reporting a decrease in employment in May are: Primary Metals; and Fabricated Metal Products.

| Employment | % Higher | % Same | % Lower | Net   | Index |
|------------|----------|--------|---------|-------|-------|
| May 2019   | 23.1     | 63.6   | 13.2    | +9.9  | 53.7  |
| Apr 2019   | 19.6     | 68.0   | 12.4    | +7.2  | 52.4  |
| Mar 2019   | 24.9     | 63.7   | 11.5    | +13.4 | 57.5  |
| Feb 2019   | 18.2     | 68.7   | 13.2    | +5.0  | 52.3  |

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## Supplier Deliveries

The delivery performance of suppliers to manufacturing organizations slowed in May, as the Supplier Deliveries Index registered 52 percent. This is 2.6 percentage points lower than the 54.6 percent reported for April. “This is the 39th straight month of slowing supplier deliveries, with the index indicating a period of supplier delivery improvement after four months of stability, but with higher stress. Supplier deliveries are improving, with many respondents noting more readily available supplier inventory, faster supplier response times, and generally suppliers ‘catching up’ despite land- and river-transportation bottlenecks. Supplier deliveries recorded their lowest level of difficulty since October 2016, when the index registered 51.5 percent,” says Fiore. A reading below 50 percent indicates faster deliveries, while a reading above 50 percent indicates slower deliveries.

The seven industries reporting slower supplier deliveries in May — listed in order — are: Plastics & Rubber Products; Chemical Products; Miscellaneous Manufacturing; Primary Metals; Computer & Electronic Products; Machinery; and Food, Beverage & Tobacco Products. The four industries reporting faster supplier deliveries in May are: Wood Products; Textile Mills; Paper Products; and Transportation Equipment. Seven industries reported no change in suppliers' delivery performance in May as compared to April.

| Supplier Deliveries | % Slower | % Same | % Faster | Net   | Index |
|---------------------|----------|--------|----------|-------|-------|
| May 2019            | 11.0     | 82.9   | 6.1      | +4.9  | 52.0  |
| Apr 2019            | 18.0     | 73.6   | 8.4      | +9.6  | 54.6  |
| Mar 2019            | 16.4     | 76.9   | 6.7      | +9.7  | 54.2  |
| Feb 2019            | 16.6     | 77.3   | 6.1      | +10.5 | 54.9  |

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## Inventories\*

The Inventories Index registered 50.9 percent in May, a decrease of 2 percentage points from the 52.9 percent reported for April. “The index expanded for the 17th consecutive month but neared contraction levels compared to the previous month. Inventories were depleted relative to production, thanks to production output strength and despite suppliers delivering faster. Inventory expansion continues but remains at low levels. The index recorded its lowest level since October 2018, when it registered 50.7 percent. Many respondents noted that they are watching inventories closely and, in some cases, ‘managing down,’ ” says Fiore. An Inventories Index greater than 44.3 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: Printing & Related Support Activities; Textile Mills; Electrical Equipment, Appliances & Components; Paper Products;



Plastics & Rubber Products; and Food, Beverage & Tobacco Products. The five industries reporting a decrease in inventories in May are: Apparel, Leather & Allied Products; Fabricated Metal Products; Miscellaneous Manufacturing; Computer & Electronic Products; and Transportation Equipment. Seven industries reported no change in raw materials inventories in May as compared to April.

| Inventories | % Higher | % Same | % Lower | Net  | Index |
|-------------|----------|--------|---------|------|-------|
| May 2019    | 18.8     | 64.3   | 16.9    | +1.9 | 50.9  |
| Apr 2019    | 20.5     | 64.8   | 14.7    | +5.8 | 52.9  |
| Mar 2019    | 18.4     | 66.9   | 14.7    | +3.7 | 51.8  |
| Feb 2019    | 20.0     | 66.8   | 13.2    | +6.8 | 53.4  |

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#### Customers' Inventories\*

ISM®'s Customers' Inventories Index registered 43.7 percent in May, which is 1.1 percentage points higher than the 42.6 percent reported for April, indicating that customers' inventory levels were considered too low. "Customers' inventories are too low for the 32nd consecutive month, remaining below preferred levels. The index registered its highest level since April 2018, when it registered 44.3 percent. The 'too low' status continues to indicate future production growth potential," says Fiore.

The four industries reporting customers' inventories as too high during the month of May are: Apparel, Leather & Allied Products; Wood Products; Primary Metals; and Electrical Equipment, Appliances & Components. The 11 industries reporting customers' inventories as too low during May — listed in order — are: Textile Mills; Petroleum & Coal Products; Fabricated Metal Products; Machinery; Computer & Electronic Products; Plastics & Rubber Products; Paper Products; Transportation Equipment; Miscellaneous Manufacturing; Food, Beverage & Tobacco Products; and Chemical Products.

| Customers' Inventories | % Reporting | % Too High | % About Right | % Too Low | Net   | Index |
|------------------------|-------------|------------|---------------|-----------|-------|-------|
| May 2019               | 81          | 10.5       | 66.5          | 23.0      | -12.5 | 43.7  |
| Apr 2019               | 78          | 10.5       | 64.2          | 25.3      | -14.8 | 42.6  |
| Mar 2019               | 80          | 6.8        | 71.7          | 21.4      | -14.6 | 42.7  |
| Feb 2019               | 74          | 4.3        | 69.4          | 26.3      | -22.0 | 39.0  |

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## Prices\*

The ISM® Prices Index registered 53.2 percent in May, an increase of 3.2 percentage points from the April reading of 50 percent, indicating raw materials ticked up following a month of unchanged activity. “Prices rebounded in May, as price issues remain in electronic components, food ingredients, wood products and other areas, which are offset by steel and aluminum declines. Shortages continue for electronic components and integrated circuits,” says Fiore. A Prices Index above 52.5 percent, over time, is generally consistent with an increase in the Bureau of Labor Statistics (BLS) Producer Price Index for Intermediate Materials.

Six of the 18 industries reported paying increased prices for raw materials in May, in the following order: Printing & Related Support Activities; Petroleum & Coal Products; Chemical Products; Miscellaneous Manufacturing; Machinery; and Transportation Equipment. The five industries reporting a decrease in prices for raw materials in May are: Wood Products; Paper Products; Fabricated Metal Products; Primary Metals; and Food, Beverage & Tobacco Products. Seven industries reported no change in raw materials prices in May as compared to April.

| Prices   | % Higher | % Same | % Lower | Net  | Index |
|----------|----------|--------|---------|------|-------|
| May 2019 | 22.0     | 62.3   | 15.7    | +6.3 | 53.2  |
| Apr 2019 | 19.0     | 62.1   | 19.0    | 0.0  | 50.0  |
| Mar 2019 | 19.1     | 70.5   | 10.5    | +8.6 | 54.3  |
| Feb 2019 | 20.0     | 58.9   | 21.1    | -1.1 | 49.4  |

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## Backlog of Orders\*

ISM®’s Backlog of Orders Index registered 47.2 percent in May, which is 6.7 percentage points lower than the 53.9 percent reported in April, indicating order backlogs contracted for the month. “Backlogs shrank during May, due to production output being able to exceed new order intake rates. Backlogs recorded their lowest level of performance since October 2016, when the index registered 45.8 percent,” says Fiore.

The 10 industries reporting growth in order backlogs in May — listed in order — are: Textile Mills; Printing & Related Support Activities; Furniture & Related Products; Nonmetallic Mineral Products; Computer & Electronic Products; Machinery; Paper Products; Plastics & Rubber Products; Fabricated Metal Products; and Chemical Products. Six industries reported a decrease in order backlogs during May — listed in order — are: Apparel, Leather & Allied Products; Primary Metals; Electrical Equipment, Appliances & Components; Food, Beverage & Tobacco Products; Transportation Equipment; and Miscellaneous Manufacturing.

| Backlog of Orders* | % Reporting | % Higher | % Same | % Lower | Net  | Index |
|--------------------|-------------|----------|--------|---------|------|-------|
| May 2019           | 88          | 21.7     | 51.1   | 27.2    | -5.5 | 47.2  |
| Apr 2019           | 89          | 24.1     | 59.8   | 16.2    | +7.9 | 53.9  |
| Mar 2019           | 86          | 19.0     | 62.8   | 18.2    | +0.8 | 50.4  |
| Feb 2019           | 88          | 23.4     | 57.8   | 18.8    | +4.6 | 52.3  |

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#### New Export Orders\*

ISM®'s New Export Orders Index registered 51 percent in May, 1.5 percentage points higher compared to the April reading of 49.5 percent, indicating that new export orders grew after one month of contraction. "New Export orders rebounded from last month's contraction, with many respondents noting trade and Brexit issues as reasons for increased activity. Three of the six big industry sectors contributed to the expansion," says Fiore.

The five industries reporting growth in new export orders in May are: Wood Products; Chemical Products; Fabricated Metal Products; Food, Beverage & Tobacco Products; and Miscellaneous Manufacturing. The eight industries reporting a decrease in new export orders in May — listed in order — are: Apparel, Leather & Allied Products; Primary Metals; Nonmetallic Mineral Products; Furniture & Related Products; Paper Products; Plastics & Rubber Products; Transportation Equipment; and Computer & Electronic Products.

| New Export Orders* | % Reporting | % Higher | % Same | % Lower | Net  | Index |
|--------------------|-------------|----------|--------|---------|------|-------|
| May 2019           | 77          | 13.6     | 74.6   | 11.7    | +1.9 | 51.0  |
| Apr 2019           | 78          | 9.1      | 80.8   | 10.1    | -1.0 | 49.5  |
| Mar 2019           | 78          | 10.7     | 82.0   | 7.3     | +3.4 | 51.7  |
| Feb 2019           | 78          | 11.8     | 82.2   | 6.1     | +5.7 | 52.8  |

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#### Imports\*

ISM®'s Imports Index registered 49.4 percent in May, a decrease of 0.4 percentage point when compared to the 49.8 percent reported for April, indicating that imports contracted in May for a second consecutive month. "Imports contracted for the second straight month, with many respondents reporting continual draw down of existing inventories and less of a dependence on overseas sources as primary reasons," says Fiore.

The four industries reporting growth in imports during the month of May are: Wood Products; Miscellaneous Manufacturing; Fabricated Metal Products; and Chemical Products. The seven industries reporting a decrease in imports in May in the following order: Apparel, Leather & Allied Products; Petroleum & Coal Products; Primary Metals; Paper Products; Transportation Equipment; Machinery; and Computer & Electronic Products. Seven industries reported no change in imports in May as compared to April.

| Imports  | % Reporting | % Higher | % Same | % Lower | Net   | Index |
|----------|-------------|----------|--------|---------|-------|-------|
| May 2019 | 84          | 10.7     | 77.4   | 11.9    | -1.2  | 49.4  |
| Apr 2019 | 85          | 12.5     | 74.4   | 13.0    | -0.5  | 49.8  |
| Mar 2019 | 82          | 12.0     | 78.2   | 9.8     | +2.2  | 51.1  |
| Feb 2019 | 80          | 16.6     | 77.5   | 5.9     | +10.7 | 55.3  |

\*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 decreased by one day in May to 145 days. Average lead time for Production Materials increased by one day to 72 days. Average lead time for Maintenance, Repair and Operating (MRO) Supplies was unchanged from April and stands at 35 days.

#### Percent Reporting

| Capital Expenditures | Hand-to-Mouth | 30 Days | 60 Days | 90 Days | 6 Months | 1 Year + | Average Days |
|----------------------|---------------|---------|---------|---------|----------|----------|--------------|
| May 2019             | 21            | 4       | 12      | 15      | 28       | 20       | 145          |
| Apr 2019             | 22            | 4       | 9       | 20      | 23       | 22       | 146          |
| Mar 2019             | 20            | 5       | 9       | 18      | 26       | 22       | 150          |
| Feb 2019             | 18            | 3       | 13      | 20      | 26       | 20       | 146          |

| Production Materials | Hand-to-Mouth | 30 Days | 60 Days | 90 Days | 6 Months | 1 Year + | Average Days |
|----------------------|---------------|---------|---------|---------|----------|----------|--------------|
| May 2019             | 11            | 32      | 27      | 17      | 9        | 4        | 72           |

| Production Materials | Hand-to-Mouth | 30 Days | 60 Days | 90 Days | 6 Months | 1 Year + | Average Days |
|----------------------|---------------|---------|---------|---------|----------|----------|--------------|
| Apr 2019             | 11            | 31      | 30      | 16      | 8        | 4        | 71           |
| Mar 2019             | 11            | 33      | 28      | 17      | 8        | 3        | 68           |
| Feb 2019             | 10            | 37      | 24      | 17      | 9        | 3        | 68           |

| MRO Supplies | Hand-to-Mouth | 30 Days | 60 Days | 90 Days | 6 Months | 1 Year + | Average Days |
|--------------|---------------|---------|---------|---------|----------|----------|--------------|
| May 2019     | 36            | 40      | 17      | 4       | 2        | 1        | 35           |
| Apr 2019     | 38            | 37      | 16      | 6       | 2        | 1        | 35           |
| Mar 2019     | 35            | 39      | 17      | 7       | 2        | 0        | 34           |
| Feb 2019     | 34            | 45      | 15      | 4       | 1        | 1        | 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 U.S., 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 2019.

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. The composition of the Manufacturing Business Survey Committee is stratified according to the North American Industry Classification System (NAICS) and each of the following NAICS-based industry's contribution to gross domestic product (GDP): 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). The data are weighted based on each

industry's contribution to GDP. Beginning in January 2018, computation of the indexes is accomplished utilizing unrounded numbers.

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<sup>®</sup>, 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<sup>®</sup> 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<sup>®</sup> reading above 50 percent indicates that the manufacturing economy is generally expanding; below 50 percent indicates that it is generally declining. A PMI<sup>®</sup> above 42.9 percent, over a period of time, indicates that the overall economy, or gross domestic product (GDP), is generally expanding; below 42.9 percent, it is generally declining. The distance from 50 percent or 42.9 percent is indicative of the strength of the expansion or decline. With some of the indicators within this report, ISM<sup>®</sup> has indicated the departure point between expansion and decline of comparable government series, as determined by regression analysis. The Manufacturing ISM<sup>®</sup> Report On Business<sup>®</sup> 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<sup>®</sup> 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<sup>®</sup> 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<sup>®</sup> Report On Business<sup>®</sup> 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.

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