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September 2018 Manufacturing ISM® Report On Business®

Choose a Section

PMI® at 59.8%

New Orders, Production, and Employment Growing

Supplier Deliveries Slowing at Slower Rate; Backlog Growing

Raw Materials Inventories Growing; Customers' Inventories Too Low

Prices Increasing at Slower Rate; Exports and Imports Growing

(Tempe, Arizona) — Economic activity in the manufacturing sector expanded in September, and the overall economy grew for the 113th 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 September PMI® registered 59.8 percent, a decrease of 1.5 percentage points from the August reading of 61.3 percent. The New Orders Index registered 61.8 percent, a decrease of 3.3 percentage points from the August reading of 65.1 percent. The Production Index registered 63.9 percent, a 0.6 percentage point increase compared to the August reading of 63.3 percent. The Employment Index registered 58.8 percent, an increase of 0.3 percentage point from the August reading of 58.5 percent. The Supplier Deliveries Index registered 61.1 percent, a 3.4-percentage point decrease from the August reading of 64.5 percent. The Inventories Index registered 53.3 percent, a decrease of 2.1 percentage points from the August reading of 55.4 percent. The Prices Index registered 66.9 percent in September, a 5.2-percentage point decrease from the August reading of 72.1 percent, indicating higher raw materials prices for the 31st consecutive month.

“Comments from the panel reflect continued expanding business strength. Demand remains strong, with the New Orders Index at 60 percent or above for the 17th straight month, and the Customers’ Inventories Index remaining low. The Backlog of Orders Index continued to expand, but at lower levels compared to the previous month. Consumption improved, with production and employment continuing to expand, at higher levels compared to August, despite shortages in labor and materials. Inputs — expressed as supplier deliveries (decreased), inventories and imports — improved compared to the previous month’s activity. But continued supply chain inefficiencies led to an increased consumption of inventory and a slight expansion of imports, which adequately supported production output. Lead-time extensions, steel and aluminum disruptions, supplier labor issues, and transportation difficulties continue to limit potential, but at more manageable levels.

“Export orders expanded, but four major industries are no longer contributing. Price pressure continues, but the index softened for the fourth straight month and dropped below 70 for the first time since December 2017. Demand remains robust, but employment resources and supply chains continue to struggle, but to a lesser degree. Respondents are again overwhelmingly concerned about tariff-related activity, including how reciprocal tariffs will impact company revenue and current manufacturing locations,” says Fiore.

Of the 18 manufacturing industries, 15 reported growth in September, in the following order: Textile Mills; Miscellaneous Manufacturing; Plastics & Rubber Products; Computer & Electronic Products; Food, Beverage & Tobacco Products; Machinery; Apparel, Leather & Allied Products; Paper Products; Electrical Equipment, Appliances & Components; Chemical Products; Petroleum & Coal Products; Transportation Equipment; Furniture & Related Products; Fabricated Metal Products; and Nonmetallic Mineral Products. The only industry reporting contraction in September is Primary Metals.

What respondents are saying

“The market is in a state of chaos with the latest round of tariffs. As an electronics original equipment manufacturer, our component prices have been impacted almost across the board. The tariffs have caused a mass rush to buy up inventories of affected products in order to minimize the long-term financial impact. This, in turn, is causing market constraints, which further drive up the cost and increase lead times.” (Computer & Electronic Products)

“Tariffs starting to take a bite out of profitability.” (Chemical Products)

“Business is strong and relatively stable. Tariffs are putting pressure on Chinese imports. Labor rates are increasing as it is very difficult to find help.” (Furniture & Related Products)

“The economy’s strength is holding [and] outlook for the industry is positive, although continuing margin compression in consumer packaged goods is restricting general growth momentum from the greater economy.” (Food, Beverage & Tobacco Products)

“Still extremely strong through November; starting to see a decline for steel prices for December.” (Fabricated Metal Products)

“General available capacity at suppliers continues to decrease, creating supply issues.” (Machinery)

“Tariffs are creating a drag on some of our export opportunities.” (Plastics & Rubber Products)

“Sourcing hourly workers for remote locations continues to be a challenge for both full-time and part-time opportunities. Have implemented a wide variety of recruiting techniques and suppliers to aid us in sourcing this hard-to-find talent.” (Paper Products)

“Orders are coming in, but from a limited number of customers. The future looks very promising.” (Primary Metals)

“Suppliers are impacted by China tariffs, [which is] delaying or cancelling manufacturing transfer projects.” (Miscellaneous Manufacturing)

### Manufacturing at a Glance

September 2018

| Index                     | Series Index<br>Sep | Series Index<br>Aug | Percentage Point<br>Change | Direction  | Rate of<br>Change | Trend*<br>(Months) |
|---------------------------|---------------------|---------------------|----------------------------|------------|-------------------|--------------------|
| PMI®                      | 59.8                | 61.3                | -1.5                       | Growing    | Slower            | 25                 |
| New Orders                | 61.8                | 65.1                | -3.3                       | Growing    | Slower            | 33                 |
| Production                | 63.9                | 63.3                | +0.6                       | Growing    | Faster            | 25                 |
| Employment                | 58.8                | 58.5                | +0.3                       | Growing    | Faster            | 24                 |
| Supplier Deliveries       | 61.1                | 64.5                | -3.4                       | Slowing    | Slower            | 24                 |
| Inventories               | 53.3                | 55.4                | -2.1                       | Growing    | Slower            | 9                  |
| Customers'<br>Inventories | 40.5                | 41.0                | -0.5                       | Too Low    | Faster            | 24                 |
| Prices                    | 66.9                | 72.1                | -5.2                       | Increasing | Slower            | 31                 |
| Backlog of Orders         | 55.7                | 57.5                | -1.8                       | Growing    | Slower            | 20                 |
| New Export Orders         | 56.0                | 55.2                | +0.8                       | Growing    | Faster            | 31                 |
| Imports                   | 54.5                | 53.9                | +0.6                       | Growing    | Faster            | 20                 |
| OVERALL ECONOMY           |                     |                     |                            | Growing    | Slower            | 113                |
| Manufacturing Sector      |                     |                     |                            | Growing    | Slower            | 25                 |

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 (23); Aluminum Based Products (5); Corrugate (24); Electrical Components (2); Electronic Components (2); Freight (8); Hydrochloric Acid; Lumber (3); Nylon (4); Paper (5); Steel\*; Steel — Stainless (6); Steel Based Products (5); and Sulfuric Acid.

Commodities Down in Price

Brass; Copper (3); Steel\*; and Steel — Hot Rolled.

Commodities in Short Supply

Capacitors (15); Electronic Components (5); Freight (5); Labor (2); Nylon; Resistors (11); and Sulfuric Acid.

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

\*Indicates both up and down in price.

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## September 2018 Manufacturing Index Summaries

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### PMI®

Manufacturing expanded in September as the PMI® registered 59.8 percent, a decrease of 1.5 percentage points from the August reading of 61.3 percent. “This indicates strong growth in manufacturing for the 25th consecutive month, led by strong production output, continued strength in new orders, improvements in supply chain delivery performance, and better utilization of existing inventory accounts,” 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 43.2 percent, over a period of time, generally indicates an expansion of the overall economy. Therefore, the September PMI® indicates growth for the 113th consecutive month in the overall economy and the 25th straight month of growth in the manufacturing sector. “The past relationship between the PMI® and the overall economy indicates that the PMI® for September (59.8

percent) corresponds to a 5.1-percent increase in real gross domestic product (GDP) on an annualized basis.”

#### The Last 12 Months

| Month    | PMI® |
|----------|------|
| Sep 2018 | 59.8 |
| Aug 2018 | 61.3 |
| Jul 2018 | 58.1 |
| Jun 2018 | 60.2 |
| May 2018 | 58.7 |
| Apr 2018 | 57.3 |
| Month    | PMI® |
| Mar 2018 | 59.3 |
| Feb 2018 | 60.8 |
| Jan 2018 | 59.1 |
| Dec 2017 | 59.3 |
| Nov 2017 | 58.2 |
| Oct 2017 | 58.5 |

Average for 12 months - 59.2

High - 61.3

Low - 57.3

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#### New Orders

ISM®'s New Orders Index registered 61.8 percent in September, which is a decrease of 3.3 percentage points when compared to the 65.1 percent reported for August, indicating growth in new orders for the 33rd consecutive month. “Customer demand expansion softened slightly this month but continued to expand at high levels, with the index at or above 60 percent for the 17th straight month,” says Fiore. A New Orders Index above 52.4 percent, over time, is generally consistent with an increase in the Census Bureau’s series on manufacturing orders (in constant 2000 dollars).

Twelve of 18 industries reported growth in new orders in September, in the following order: Textile Mills; Miscellaneous Manufacturing; Plastics & Rubber Products; Computer & Electronic Products; Printing & Related Support Activities; Chemical Products; Paper Products; Machinery; Electrical Equipment, Appliances & Components; Food, Beverage & Tobacco Products; Furniture & Related Products; and Transportation Equipment. The three industries reporting a decrease in new orders in September are: Nonmetallic Mineral Products; Primary Metals; and Fabricated Metal Products.

| New Orders | % Higher | % Same | % Lower | Net   | Index |
|------------|----------|--------|---------|-------|-------|
| Sep 2018   | 31.4     | 57.7   | 10.9    | +20.5 | 61.8  |
| Aug 2018   | 35.4     | 54.3   | 10.3    | +25.1 | 65.1  |
| Jul 2018   | 29.0     | 60.1   | 10.9    | +18.1 | 60.2  |
| Jun 2018   | 39.7     | 53.0   | 7.3     | +32.5 | 63.5  |

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## Production

ISM®'s Production Index registered 63.9 percent in September, which is an increase of 0.6 percentage point when compared to the 63.3 percent reported for August, indicating growth in production for the 25th consecutive month. "Production expansion continued in September, surpassing August expansion and resulting in the strongest gains since January 2018, when the index registered 64.5. Labor constraints throughout the supply chain, impacts due to lead-time expansions and transportation difficulties continue to limit full production potential," says Fiore. An index above 51.5 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 September — listed in order — are: Printing & Related Support Activities; Miscellaneous Manufacturing; Apparel, Leather & Allied Products; Textile Mills; Plastics & Rubber Products; Computer & Electronic Products; Electrical Equipment, Appliances & Components; Food, Beverage & Tobacco Products; Machinery; Chemical Products; Furniture & Related Products; Paper Products; Fabricated Metal Products; and Transportation Equipment. No industry reported a decrease in production in September.

| Production | % Higher | % Same | % Lower | Net   | Index |
|------------|----------|--------|---------|-------|-------|
| Sep 2018   | 33.6     | 56.7   | 9.6     | +24.0 | 63.9  |
| Aug 2018   | 35.3     | 53.8   | 10.9    | +24.4 | 63.3  |
| Jul 2018   | 31.5     | 52.6   | 15.9    | +15.6 | 58.5  |

| Production | % Higher | % Same | % Lower | Net   | Index |
|------------|----------|--------|---------|-------|-------|
| Jun 2018   | 38.7     | 51.0   | 10.3    | +28.4 | 62.3  |

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## Employment

ISM®'s Employment Index registered 58.8 percent in September, an increase of 0.3 percentage point when compared to the August reading of 58.5 percent. This indicates growth in employment in September for the 24th consecutive month. "Employment continued to expand, supporting production growth. The index achieved its highest level since February 2018, when it registered 59.7. Respondents continued to note labor-market issues as a constraint to their production and, more significantly, their suppliers' production capability," 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.

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

| Employment | % Higher | % Same | % Lower | Net   | Index |
|------------|----------|--------|---------|-------|-------|
| Sep 2018   | 26.1     | 62.9   | 11.0    | +15.1 | 58.8  |
| Aug 2018   | 26.6     | 63.6   | 9.8     | +16.8 | 58.5  |
| Jul 2018   | 27.1     | 61.2   | 11.7    | +15.4 | 56.5  |
| Jun 2018   | 29.0     | 59.6   | 11.3    | +17.7 | 56.0  |

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## Supplier Deliveries

The delivery performance of suppliers to manufacturing organizations slowed in September, as the Supplier Deliveries Index registered 61.1 percent. This is 3.4 percentage points lower than the 64.5 percent reported for August. "This is the 24th straight month of slowing supplier deliveries and indicates the supply chain's difficulty in keeping up with new order and production demand. Lead times continue to extend, supply chain labor issues continue to restrict performance, and transportation issues are

limiting supplier execution,” says Fiore. A reading below 50 percent indicates faster deliveries, while a reading above 50 percent indicates slower deliveries.

The 13 industries reporting slower supplier deliveries in September — listed in order — are: Textile Mills; Apparel, Leather & Allied Products; Nonmetallic Mineral Products; Fabricated Metal Products; Furniture & Related Products; Machinery; Computer & Electronic Products; Food, Beverage & Tobacco Products; Miscellaneous Manufacturing; Plastics & Rubber Products; Paper Products; Chemical Products; and Transportation Equipment. No manufacturing industries reported faster supplier deliveries during the month of September.

| Supplier Deliveries | % Slower | % Same | % Faster | Net   | Index |
|---------------------|----------|--------|----------|-------|-------|
| Sep 2018            | 28.3     | 67.1   | 4.6      | +23.7 | 61.1  |
| Aug 2018            | 32.6     | 62.9   | 4.5      | +28.1 | 64.5  |
| Jul 2018            | 28.5     | 67.8   | 3.7      | +24.8 | 62.1  |
| Jun 2018            | 38.7     | 58.9   | 2.4      | +36.3 | 68.2  |

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#### Inventories\*

The Inventories Index registered 53.3 percent in September, which is a decrease of 2.1 percentage points when compared to the 55.4 percent reported for August. “Inventories continued to expand for the ninth consecutive month. Supplier deliveries improved compared to the previous month, but inventories declined as a result of strong production output,” says Fiore. An Inventories Index greater than 43 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 11 industries reporting higher inventories in September — listed in order — are: Textile Mills; Apparel, Leather & Allied Products; Plastics & Rubber Products; Electrical Equipment, Appliances & Components; Food, Beverage & Tobacco Products; Petroleum & Coal Products; Computer & Electronic Products; Transportation Equipment; Primary Metals; Miscellaneous Manufacturing; and Machinery. The three industries reporting a decrease in inventories in September are: Printing & Related Support Activities; Fabricated Metal Products; and Furniture & Related Products.

| Inventories | % Higher | % Same | % Lower | Net   | Index |
|-------------|----------|--------|---------|-------|-------|
| Sep 2018    | 20.6     | 65.4   | 14.0    | +6.6  | 53.3  |
| Aug 2018    | 25.2     | 60.4   | 14.5    | +10.7 | 55.4  |
| Jul 2018    | 22.3     | 61.9   | 15.8    | +6.5  | 53.3  |



| Inventories | % Higher | % Same | % Lower | Net  | Index |
|-------------|----------|--------|---------|------|-------|
| Jun 2018    | 20.7     | 60.2   | 19.1    | +1.6 | 50.8  |

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#### Customers' Inventories\*

ISM®'s Customers' Inventories Index registered 40.5 percent in September, which is 0.5 percentage point lower than the 41 percent reported for August, indicating that customers' inventory levels were considered too low. "Customers' inventory levels are too low for the 24th consecutive month, which continue to represent notable unmet demand in the near term," says Fiore.

The only manufacturing industry that reported customers' inventories as too high during the month of September is Transportation Equipment. The nine industries reporting customers' inventories as too low during September — listed in order — are: Plastics & Rubber Products; Electrical Equipment, Appliances & Components; Paper Products; Computer & Electronic Products; Nonmetallic Mineral Products; Food, Beverage & Tobacco Products; Machinery; Chemical Products; and Miscellaneous Manufacturing. Six industries reported no change in customers' inventories in September as compared with August.

| Customers' Inventories | % Reporting | % Too High | % About Right | % Too Low | Net   | Index |
|------------------------|-------------|------------|---------------|-----------|-------|-------|
| Sep 2018               | 79          | 6.0        | 69.0          | 25.0      | -19.0 | 40.5  |
| Aug 2018               | 82          | 7.8        | 66.5          | 25.7      | -17.9 | 41.0  |
| Jul 2018               | 79          | 4.8        | 69.2          | 26.0      | -21.2 | 39.4  |
| Jun 2018               | 79          | 5.3        | 68.9          | 25.8      | -20.6 | 39.7  |

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#### Prices\*

The ISM® Prices Index registered 66.9 percent in September, a decrease of 5.2 percentage points from the August reading of 72.1 percent, indicating an increase in raw materials prices for the 31st consecutive month. In September, 42.3 percent of respondents reported paying higher prices, 8.6 percent reported paying lower prices, and 49.1 percent of supply executives reported paying the same prices as in August. "The price increases across all industry sectors continue, but at lower expansion levels. The Business Survey Committee noted price increases softening in metals (all steels, steel components and aluminum). However, increases continue in various chemicals, corrugate and packaging products, freight, labor, electrical and electronic components, products manufactured primarily from steel, and paper products. Shortages continue in electrical and electronic components, labor, and freight. The index eased to its lowest expansion level since November 2017, when it registered 64.8

percent,” says Fiore. 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.

Fifteen of the 18 industries reported paying increased prices for raw materials in September, in the following order: Textile Mills; Printing & Related Support Activities; Apparel, Leather & Allied Products; Paper Products; Chemical Products; Miscellaneous Manufacturing; Machinery; Furniture & Related Products; Computer & Electronic Products; Transportation Equipment; Plastics & Rubber Products; Petroleum & Coal Products; Food, Beverage & Tobacco Products; Nonmetallic Mineral Products; and Electrical Equipment, Appliances & Components. The two industries reporting a decrease in prices in September are: Primary Metals; and Fabricated Metal Products.

| Prices   | % Higher | % Same | % Lower | Net   | Index |
|----------|----------|--------|---------|-------|-------|
| Sep 2018 | 42.3     | 49.1   | 8.6     | +33.7 | 66.9  |
| Aug 2018 | 51.1     | 42.0   | 6.8     | +44.3 | 72.1  |
| Jul 2018 | 54.6     | 37.3   | 8.1     | +46.5 | 73.2  |
| Jun 2018 | 56.9     | 39.9   | 3.3     | +53.6 | 76.8  |

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#### Backlog of Orders\*

ISM®’s Backlog of Orders Index registered 55.7 percent in September, which is 1.8 percentage points lower than the 57.5 percent reported in August, indicating growth in order backlogs for the 20th consecutive month. “Backlogs continued to grow, but at slightly lower levels compared to August. Continued low levels of customer inventory and strong new order expansion continue to support production requirements in the near term,” says Fiore.

The 11 industries reporting growth in order backlogs in September — listed in order — are: Textile Mills; Food, Beverage & Tobacco Products; Petroleum & Coal Products; Printing & Related Support Activities; Miscellaneous Manufacturing; Plastics & Rubber Products; Computer & Electronic Products; Chemical Products; Electrical Equipment, Appliances & Components; Machinery; and Transportation Equipment. The five industries reporting a decrease in order backlogs during September are: Apparel, Leather & Allied Products; Primary Metals; Nonmetallic Mineral Products; Fabricated Metal Products; and Furniture & Related Products.

| Backlog of Orders* | % Reporting | % Higher | % Same | % Lower | Net   | Index |
|--------------------|-------------|----------|--------|---------|-------|-------|
| Sep 2018           | 89          | 26.7     | 57.9   | 15.4    | +11.3 | 55.7  |
| Aug 2018           | 87          | 30.3     | 54.4   | 15.3    | +15.0 | 57.5  |

| Backlog of Orders* | % Reporting | % Higher | % Same | % Lower | Net   | Index |
|--------------------|-------------|----------|--------|---------|-------|-------|
| Jul 2018           | 87          | 24.0     | 61.3   | 14.7    | +9.3  | 54.7  |
| Jun 2018           | 90          | 32.8     | 54.6   | 12.6    | +20.2 | 60.1  |

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#### New Export Orders\*

ISM®'s New Export Orders Index registered 56 percent in September, an increase of 0.8 percentage point when compared to the 55.2 percent reported for August, indicating growth in new export orders for 31 consecutive months. "Export Index remains strong, but only two of the six big industry sectors contributed during the period, down two from the previous month," says Fiore.

The five industries reporting growth in new export orders in September are: Petroleum & Coal Products; Miscellaneous Manufacturing; Nonmetallic Mineral Products; Chemical Products; and Computer & Electronic Products. The three industries reporting a decrease in new export orders in September are: Primary Metals; Plastics & Rubber Products; and Transportation Equipment. Ten industries reported no change in new export orders in September.

| New Export Orders* | % Reporting | % Higher | % Same | % Lower | Net   | Index |
|--------------------|-------------|----------|--------|---------|-------|-------|
| Sep 2018           | 80          | 19.4     | 73.3   | 7.3     | +12.1 | 56.0  |
| Aug 2018           | 79          | 20.7     | 69.1   | 10.2    | +10.5 | 55.2  |
| Jul 2018           | 78          | 18.1     | 74.3   | 7.6     | +10.5 | 55.3  |
| Jun 2018           | 79          | 15.8     | 81.1   | 3.1     | +12.6 | 56.3  |

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#### Imports\*

ISM®'s Imports Index registered 54.5 percent in September, an increase of 0.6 percentage point when compared to the 53.9 percent reported for August, indicating that imports grew in September for the 20th consecutive month. "Imports continued to expand, but at 2.7 points lower than Q2 average levels," says Fiore.

The nine industries reporting growth in imports during the month of September — listed in order — are: Apparel, Leather & Allied Products; Miscellaneous Manufacturing; Plastics & Rubber Products; Computer & Electronic Products; Food, Beverage & Tobacco Products; Furniture & Related Products; Petroleum & Coal Products; Nonmetallic Mineral Products; and Chemical Products. The four industries reporting a decrease in imports during September are: Primary Metals; Paper Products; Electrical Equipment, Appliances & Components; and Fabricated Metal Products.

| Imports  | % Reporting | % Higher | % Same | % Lower | Net   | Index |
|----------|-------------|----------|--------|---------|-------|-------|
| Sep 2018 | 85          | 19.4     | 70.2   | 10.4    | +9.0  | 54.5  |
| Aug 2018 | 87          | 17.2     | 73.6   | 9.3     | +7.9  | 53.9  |
| Jul 2018 | 82          | 19.4     | 70.6   | 10.0    | +9.4  | 54.7  |
| Jun 2018 | 85          | 24.3     | 69.3   | 6.4     | +17.9 | 59.0  |

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

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#### Buying Policy

Average commitment lead time for Capital Expenditures increased by three days in September to 147 days. Average lead time for Production Materials decreased by one day to 68 days. Average lead time for Maintenance, Repair and Operating (MRO) Supplies increased by one day to 34 days.

#### Percent Reporting

| Capital Expenditures | Hand-to-Mouth | 30 Days | 60 Days | 90 Days | 6 Months | 1 Year + | Average Days |
|----------------------|---------------|---------|---------|---------|----------|----------|--------------|
| Sep 2018             | 19            | 7       | 10      | 19      | 23       | 22       | 147          |
| Aug 2018             | 19            | 8       | 7       | 22      | 23       | 21       | 144          |
| Jul 2018             | 23            | 7       | 9       | 15      | 28       | 18       | 137          |
| Jun 2018             | 21            | 7       | 9       | 17      | 26       | 20       | 143          |

| Production Materials | Hand-to-Mouth | 30 Days | 60 Days | 90 Days | 6 Months | 1 Year + | Average Days |
|----------------------|---------------|---------|---------|---------|----------|----------|--------------|
| Sep 2018             | 12            | 34      | 28      | 15      | 7        | 4        | 68           |
| Aug 2018             | 11            | 36      | 27      | 14      | 8        | 4        | 69           |
| Jul 2018             | 11            | 37      | 23      | 18      | 7        | 4        | 69           |
| Jun 2018             | 11            | 33      | 29      | 16      | 7        | 4        | 69           |

| MRO Supplies | Hand-to-Mouth | 30 Days | 60 Days | 90 Days | 6 Months | 1 Year + | Average Days |
|--------------|---------------|---------|---------|---------|----------|----------|--------------|
| Sep 2018     | 38            | 36      | 16      | 7       | 3        | 0        | 34           |
| Aug 2018     | 41            | 37      | 15      | 4       | 2        | 1        | 33           |
| Jul 2018     | 37            | 41      | 13      | 6       | 2        | 1        | 35           |
| Jun 2018     | 36            | 43      | 14      | 5       | 2        | 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 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 September 2018.

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 43.2 percent, over a period of time, indicates that the overall economy, or gross domestic product (GDP), is generally expanding; below 43.2 percent, it is generally declining. The distance from 50 percent or 43.2 percent is indicative of the extent 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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