

Manufacturing Conference
September 5, 2024
Bend XPO
East Moline, IL

Presenter:
Ed Youdell
President and CEO
Fabricators and Manufacturers
Association

Key Issues are Evolutionary, not Revolutionary

- Market Overview
- Competitive Factors
 - We Need People
 - Trends in Technology
- Market Forecast

US Manufacturing

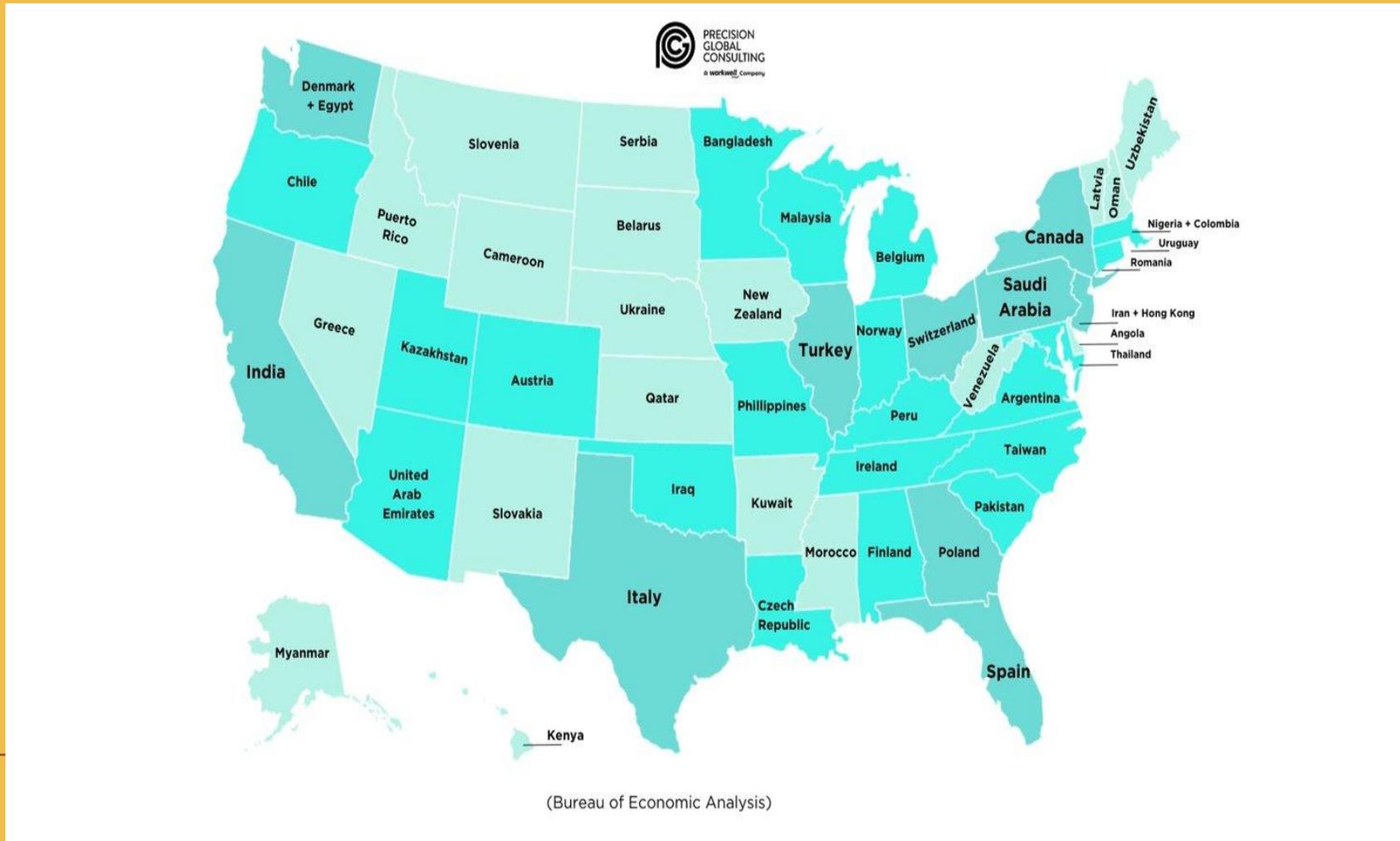
- Manufacturing accounts for 10.7% of total output in US – roughly \$2.5 trillion. Employs about 9.0% of workforce directly.
- This can be misleading as people are categorized by job function.
 - It is estimated that 90% of those that work for Ford are NOT in manufacturing as they are in HR, marketing, etc.,.
 - Even those that install and maintain the robots are technically robot maintenance and not in manufacturing.
- It has been estimated that a third of the US workforce is directly and indirectly attached to manufacturing (accountants servicing manufacturing clients, insurance companies, ad agencies and so on)

Exports and Global Position

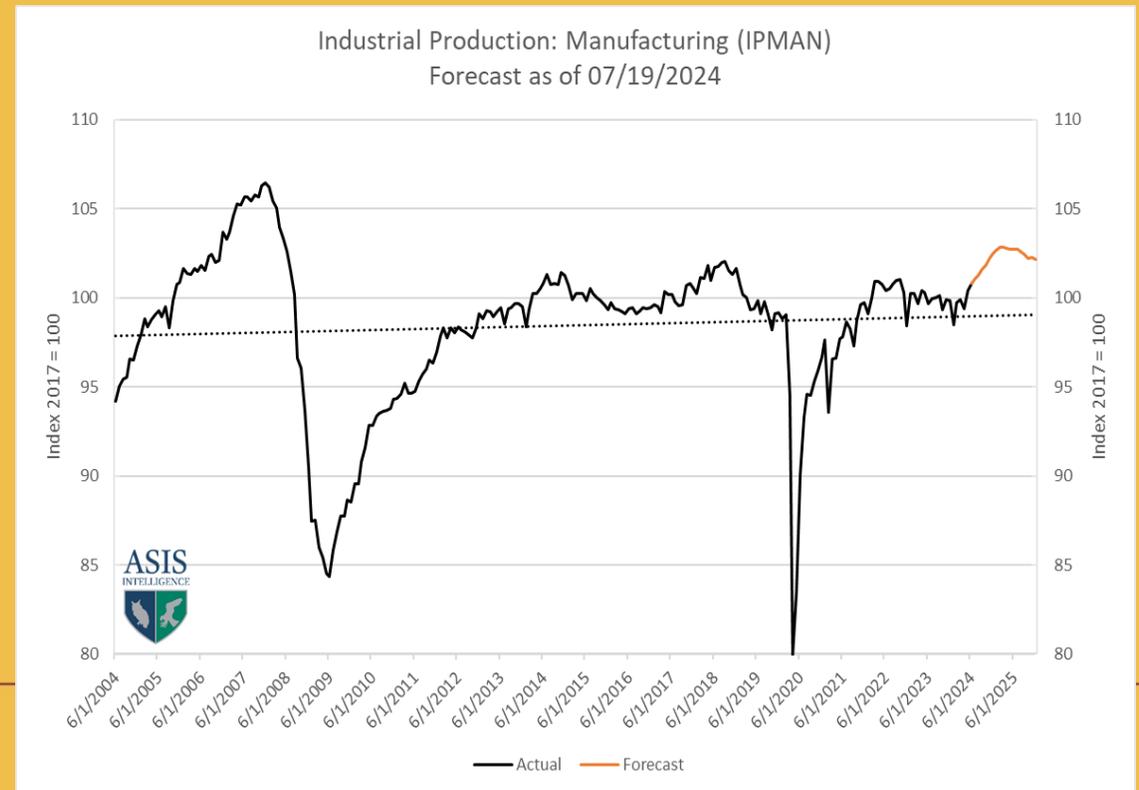
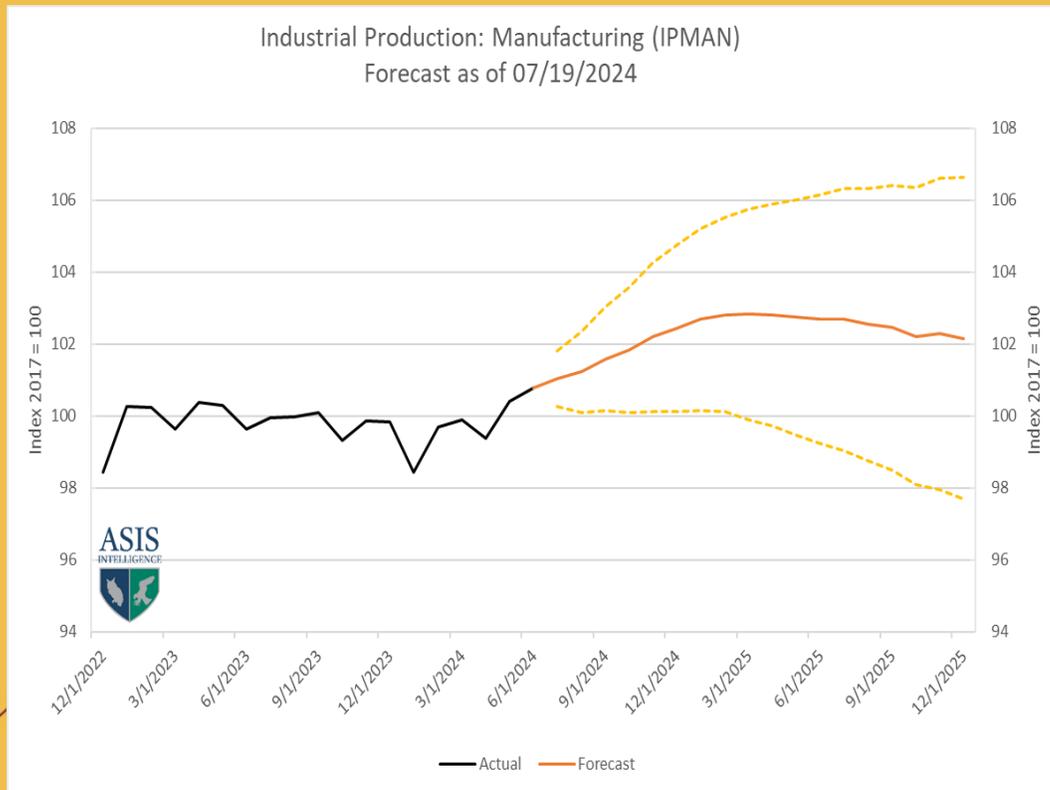
- Exports of \$1.4 trillion in manufactured goods. The dominant export from the US is food but second is high level manufacturing and machinery.
- **The US accounts for 18% of manufacturing value in the world** (China accounts for 30%). China dominates in consumer goods
- US dominates in high value goods such as airplanes, machinery, robotics and similar tech.
- **Every dollar spent yields \$1.81**
- Manufacturing value added has been stagnant for the last decade. Japan and India have been stable – China, Germany and US have seen declines



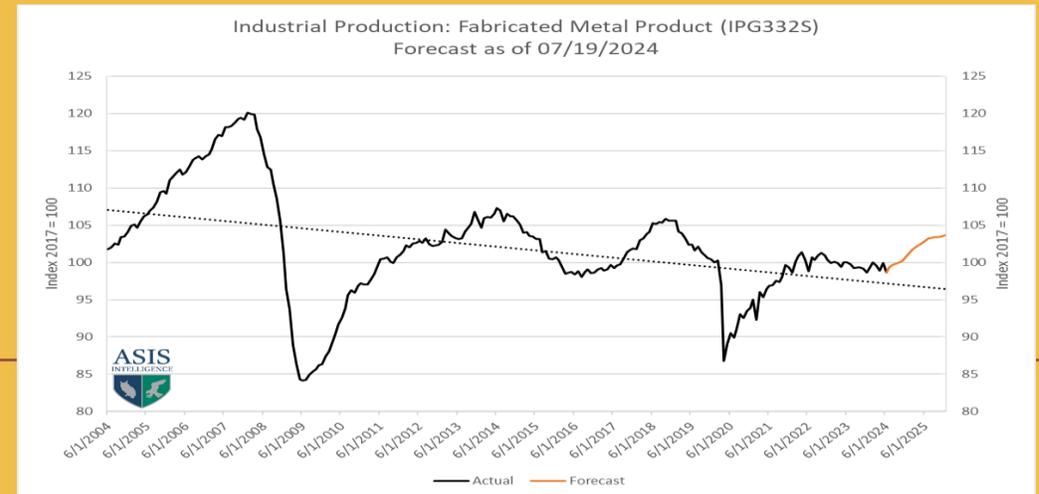
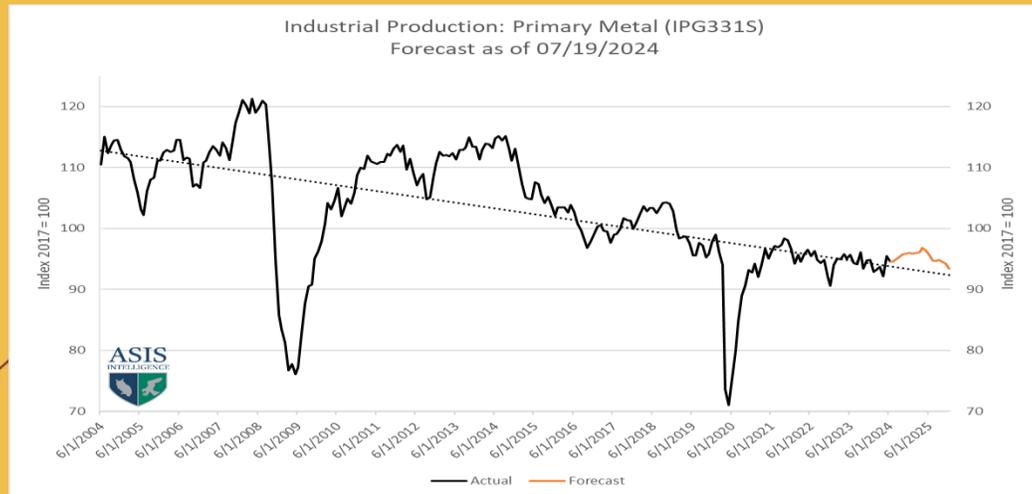
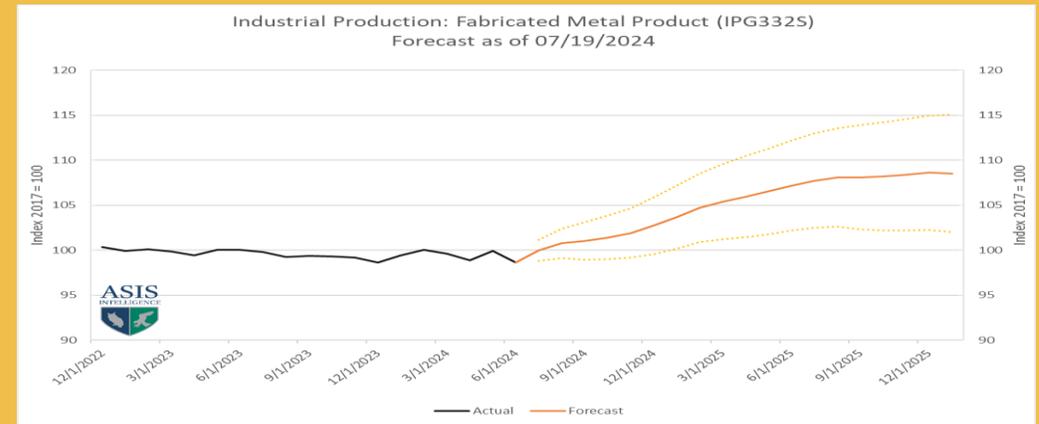
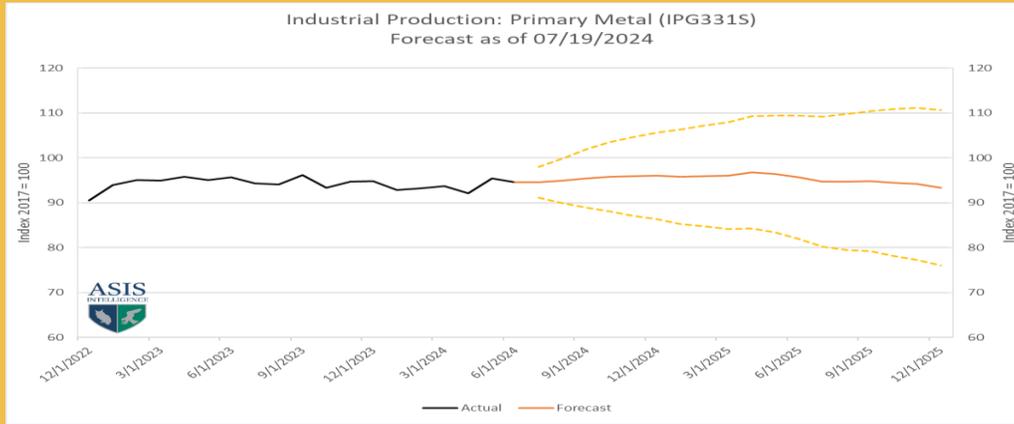
Fabricators and Manufacturers Association™



Manufacturing Way Above Trend



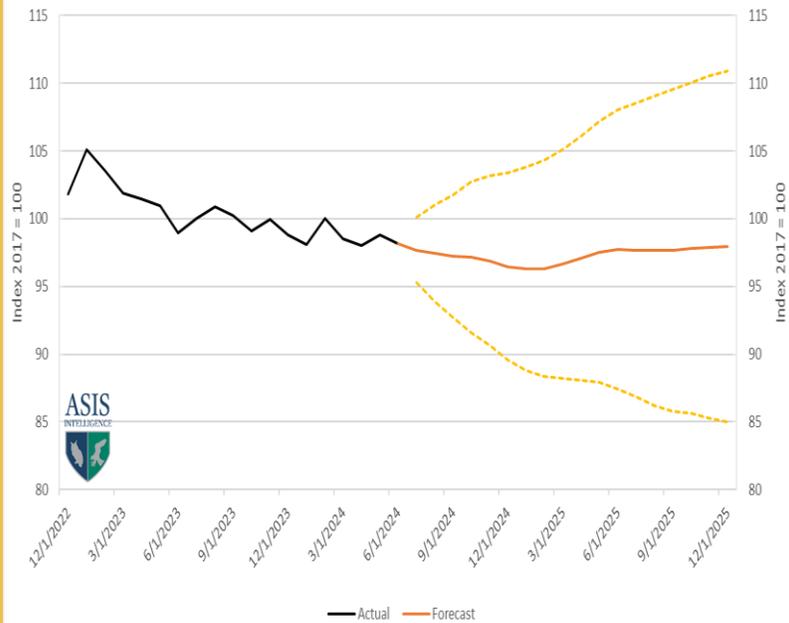
Primary and Fab Metals Above Trend



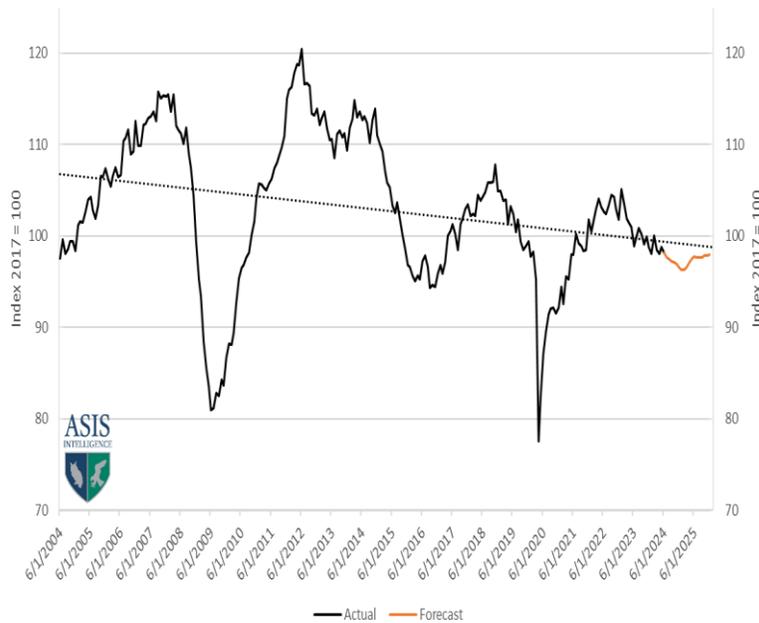


Machinery Slightly Below Trend

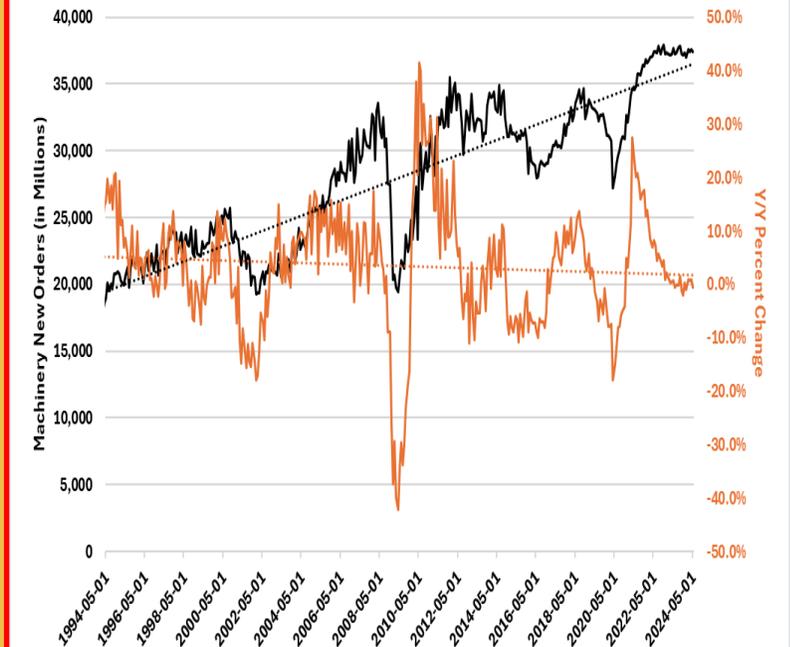
Industrial Production: Machinery (IPG333S)
Forecast as of 07/19/2024



Industrial Production: Machinery (IPG333S)
Forecast as of 07/19/2024



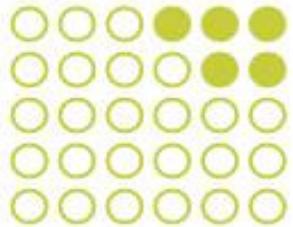
New Orders for Machinery



Iowa
Data

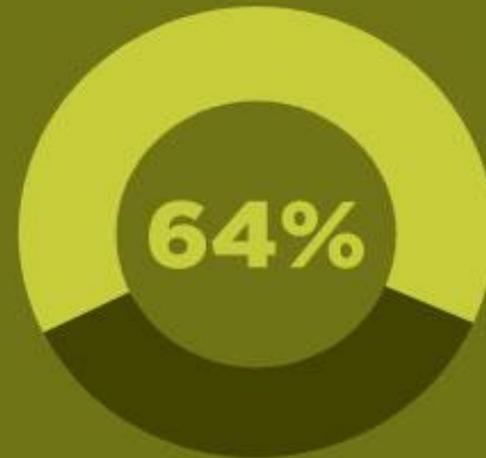
\$30.1 BILLION

OR 17% OF IOWA'S GDP
IS GENERATED BY
MANUFACTURING



MANUFACTURING
EMPLOYS **17%** OF
IOWA'S PRIVATE
WORKFORCE

NEARLY TWO-THIRDS
OF IOWA'S EXPORTS
COME FROM THE
MANUFACTURING
INDUSTRY



Quick Facts – Iowa Manufacturing

- First tractor/combine and general farm machinery developed in Iowa between 1910 and 1940
- Dominant in eastern part of the state
- Today's products range from appliances, cars, recreational vehicles, construction and forestry equipment
- Advanced manufacturing is Iowa's largest industry - \$35 billion annually. Over 6,000 manufacturing facilities employing 15% of state workforce. Construction costs are 18% below national average.
- In top five of states for manufacturing GDP – 18.2% of state GDP

Quick Facts-Iowa Manufacturing

230,000 manufacturing employees statewide

Average annual compensation - \$80,000

Over \$13 billion in exports in 2023

Top export targets – Canada (30%), Mexico (13%),
Japan (7.6%), China (6.1%) and Germany (5.1)

Speaking of Iowa
Statistics.....



Fabricators and
Manufacturers Association™

Congratulations to the Hawkeyes
For
scoring 40 points last Saturday

Quick Facts-Illinois Manufacturing

- Accounts for 12.83% of state's output, 9.4% of workforce.
- Total of \$115 billion in 2021.
- 557,000 employees directly in manufacturing and average compensation of about \$98,000 in 2021
- Roughly 12,000 firms in the state – mostly outside Chicago.
- Exports of about \$63 billion – Canada (29.2%), Mexico (13.6%), Germany (5.8%), Australia (5.6%), China (5.0%)
- Major products include food, chemicals, fab metals, computers and electronics, rubber products, printing and publishing
- Very little in Chicago proper, more in the exurbs



East Moline Contribution

Heavily engaged in the Quad Cities

Manufacturing Institute due to proximity to
Rock Island Arsenal

Most manufacturers in the region closely tied to
agriculture – a sector that traditionally sees
volatility. (see attached report that Armada did
on Farm Sector)



Farm Equipment Demand Index

- **Demand Index Comes in at 61.8.** The Farm Equipment Demand Index came in at 61.8 in May (latest available), up 1.0% M/M vs. the April level. It was 9.4% lower than it was in the same period last year (-12.2% lower in the last briefing). Data shows demand improved slightly and 1) it remained above the pre-pandemic levels and yet 2) it continues to remain under the long-term trendline (dotted line in chart at right).
- **Production Continues to Slow.** Farm equipment manufacturing activity in the United States fell at an 3.7% rate year-over-year through May (latest available and 7.2% lower last month). Interestingly, for the second month in a row it was higher month-over-month by 0.7%. Industrial Production in the farm equipment complex can be volatile as the chart in area #2 shows.
- **What is Pushing the Demand Index?** The index uses a variety of variables to gauge demand, and it was heavily mixed this month. Farm incomes were still struggling under the weight of inflation and higher interest rates. But note that spending continues, and at a faster rate than the period prior to the pandemic on a national basis despite the obvious deceleration since the 2021/2022 peak.



Looking Forward:

- **Crop Stocks Up Sharply Y/Y.** Stocks of the three core crops are all up sharply on a year-over-year basis, which is impacting the marketable price of those commodities. Corn stocks are up 22% from June of last year. Soybeans are also up 22% while all wheat stocks are up an average of 23%.

Corn prices are down 18.9% YTD and 18.4% Y/Y (December 2024 futures). Soybeans are down 13.5% YTD and 13% Y/Y while wheat is down 13.9% YTD and 19.6% Y/Y.

Increased output will create strong demand for equipment/maintenance, but lower selling prices will affect farmer's ability to invest and take on more risk.

But the recent improvements (however slight) in the relative indexes provide some hope that farmer sentiment may be improving slightly and will provide the fuel for future equipment investments.

Growing conditions are still good, but extreme heat is starting to weigh on late summer crops, depending on the area of the country. Drier conditions are showing up in the Midwest and along the Eastern Seaboard in the latest drought map.

Big Issues facing the Industry-Feedback from FMA Board of Directors

- a. Shortage of an available workforce
- b. The greatest challenge is in front-end production
- c. Negative perception of jobs in the industry
- d. Societal issues such as education, desire to have flexible working conditions
- e. Company ownership - retirement of owners private / equity buying / consolidation
- f. Continued integration of technology (automation, robotics, and AI)
- g. Fast growth driving shortages as well – backlogs in machinery delivery
- h. Public investments increasing demand
- i. Supply chain challenges
- j. Inflation of overall material costs / price of metal / energy costs
- k. Re-shoring to consolidate the supply chain and decrease logistics costs
- l. Globalization of the industry increases the impact of geopolitical issues
- m. Emerging markets and new products such as electric vehicles (charging stations)

Manufacturing Institute's September 2023 Study



THE MANUFACTURING EXPERIENCE
**THE ROLE OF CULTURE
AND EMPLOYEE
ENGAGEMENT**

in Workforce Attraction and Retention

SEPTEMBER 2023

KEY FINDINGS AND INSIGHTS
FROM MANUFACTURERS
WITH SUPPORT FROM

Colonial Life.



The following are highlights of the report:

- When asked about their top priorities for current dollars, nearly 74% of manufacturers reported building a robust and trained workforce as a key area for investment, which fits in with the larger macroeconomic conditions of the tight labor market and shortage of available workers.
- When business leaders were asked how they would spend a marginal \$1 million, 61.5% would invest in new equipment. These findings point toward a desire to make smart investments that will transform operations and the production process, while also ensuring that the workforce can adapt to such changes.

The following are highlights of the Manufacturing Institutes report:

- When considering their future growth strategies, manufacturers identified a stronger domestic economy for growing sales (69.5%), increased efficiencies in the production process (67.8%) and maintaining a robust and trained workforce (67.0%) as the most significant factors in contributing to expansion.



THE
FABRICATOR™

Metal fabricator finds flexibility in its bending department with cobots

Wisconsin manufacturing company finds success with its first collaborative robot installation

June 2023



Images: Kapco Metal Stamping

Metal Fabrication Industry Technology Trends:

Parts Sorter

Courtesy of MC Machinery Systems



Metal Fabrication Industry Technology Trends:

Coil-fed Laser Cutting Cell

Courtesy of TRUMPF



Metal Fabrication Industry Technology Trends:

Automated Material Handling System

Courtesy of Bystronic





AGV photo
courtesy:
AMADA America



Fabricators and
Manufacturers Association™

THE FABRICATOR

OCTOBER 2023 | VOL. 53 NO. 10

An official publication of  FABTECH

In this issue

46 Revitalize your bending department

56 Why do fabricators automate—really?

60 Job shop strategies—
from the spy world

62 A deep dive into the ultrahigh-power fiber laser

Building fab shop software—

WITH AI

New developments
unify a fragmented
landscape
PAGE 42

2ND QUARTER | 2024



FMA™

**Forming and Fabricating Job
Shop Consumption Report**

[FMAMFG.ORG](https://fmamfg.org)

Sponsored by: **CNA**



5. Compared to the last half of 2023, employment at your company is:

Answer	Graph (0-155)	2Q 2024 Response	2Q 2024%	4Q 2023%	2Q 2023%
Increasing		60	24.00%	23.14%	24.44%
Stable		153	61.20%	63.14%	60.56%
Decreasing		37	14.80%	13.73%	15.00%
Total		250			

6. Compared to the last half of 2023, steel and aluminum prices are:

Answer	Graph (0-110)	2Q 2024 Response	2Q 2024%	4Q 2023%	2Q 2023%
Increasing		108	44.08%	43.08%	32.96%
Stable		98	40.00%	39.53%	38.55%
Decreasing		39	15.92%	17.39%	28.49%
Total		245			

7. Compared to the last half of 2023, logistic costs are:

Answer	Graph (0-150)	2Q 2024 Response	2Q 2024%	4Q 2023%	2Q 2023%
Increasing		149	60.32%	51.38%	49.16%
Stable		89	36.03%	43.48%	44.69%
Decreasing		9	3.64%	5.14%	6.15%
Total		247			



4a. Compared to the last half of 2023, new order activity is:

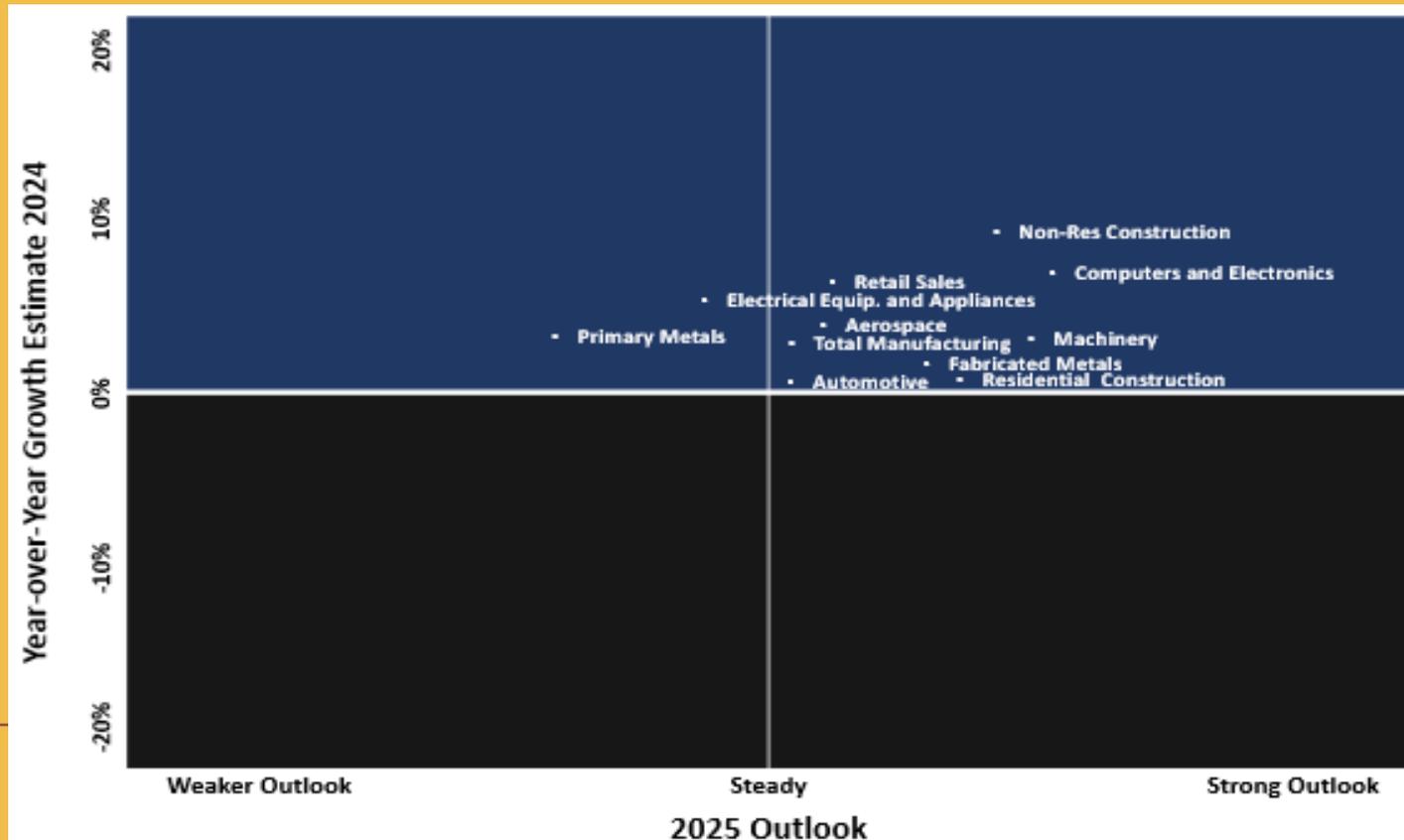
Answer	Graph (0-105)	2Q 2024 Response	2Q 2024%	4Q 2023%	2Q 2023%
Increasing		84	33.60%	26.27%	31.28%
Stable		102	40.80%	48.63%	39.11%
Decreasing		64	25.60%	25.10%	29.61%
Total		250			



**Fabricators and
Manufacturers Association™**

Business Environment Outlook Where do we go from here?

Most Industrial Sectors Still Trending Positive





Fabricators and Manufacturers Association™

Goldman Sachs GDP Forecasts

KEY MACRO FORECASTS																Market FX Weighted
	GDP (%)						CPI (%)						Policy Rates (%)			
	2023	2024	2025	2026	2027	2028	2023	2024	2025	2026	2027	2028	2023	2024	2025	2026
Aggregates																
World	2.7	2.7	2.8	2.6	2.6	2.6	4.7	3.4	2.7	2.4	2.4	2.4	4.44	3.88	3.15	3.01
Developed Markets	1.6	1.7	1.9	1.7	1.7	1.7	4.6	2.7	2.2	2.0	2.1	2.1	4.47	3.84	2.96	2.80
Emerging Markets	4.2	4.0	4.0	3.9	3.9	3.8	4.9	4.5	3.4	2.9	2.8	2.8	4.40	3.94	3.45	3.33
Countries																
US	2.5	2.7	2.3	2.0	2.0	2.1	4.1	2.9	2.2	2.1	2.2	2.2	5.38	4.63	3.63	3.38
Euro Area	0.5	0.7	1.3	1.2	1.1	1.2	5.4	2.5	2.2	2.0	2.0	2.0	4.00	3.25	2.25	2.25
Japan	1.7	0.1	1.4	1.2	1.1	1.0	3.3	2.5	2.1	1.6	1.7	1.7	-0.05	0.25	0.75	1.25
Germany	-0.1	0.0	0.9	1.3	1.3	1.3	6.0	2.7	2.3	2.1	2.0	2.0	4.00	3.25	2.25	2.25
United Kingdom	0.1	1.1	1.6	1.5	1.4	1.5	7.3	2.5	2.4	2.0	2.0	2.0	5.25	4.75	3.75	3.00
India	7.7	6.7	6.4	6.4	6.4	6.6	5.7	4.6	4.5	4.5	4.5	4.5	6.50	6.25	6.00	6.00
France	1.1	1.3	1.1	1.1	1.1	1.2	5.7	2.5	2.1	2.0	2.0	2.0	4.00	3.25	2.25	2.25
Brazil	2.9	2.5	2.0	2.4	2.4	2.4	4.6	4.0	3.9	3.8	3.5	3.4	11.75	10.50	9.50	8.50
Italy	1.0	0.8	1.0	0.9	0.8	0.9	5.9	1.9	1.6	1.5	1.6	1.6	4.00	3.25	2.25	2.25
China	5.2	4.9	4.3	4.0	3.9	3.7	0.2	0.4	1.5	1.5	1.5	1.5	1.80	1.60	1.40	1.40
Canada	1.2	1.0	1.7	1.8	1.8	1.9	3.9	2.5	2.2	2.0	2.0	2.0	5.00	3.75	2.75	2.75
South Korea	1.4	2.3	2.4	2.4	2.5	2.5	3.6	2.4	2.0	2.0	2.0	2.0	3.50	3.25	2.50	2.50
Russia	3.6	3.5	1.2	2.1	2.0	2.0	5.9	8.1	7.0	4.2	4.0	4.0	16.00	18.00	14.00	9.00
Australia	2.0	1.4	2.4	2.5	2.5	2.7	5.6	3.3	2.7	2.6	2.5	2.5	4.35	4.35	3.25	3.25
Spain	2.5	2.7	1.8	1.4	1.3	1.4	3.4	3.2	2.3	2.3	2.4	2.4	4.00	3.25	2.25	2.25
Mexico	3.2	1.4	1.6	2.3	2.5	2.5	5.5	4.8	4.0	3.4	3.2	3.1	11.25	10.00	8.25	6.75

Goldman Sachs Global Investment Research. Notes on policy rates: Australia - The cash rate; China - 7 day repo rate; Euro Area - ECB deposit rate; India - Repo rate; Japan - Deposit rate; Russia - CBR min 1-week repo rate - eop; South Korea - 7-day repo agreement; US - Federal Funds Target Rate. Australia forecasts provided by Goldman Sachs Australia Pty Ltd (ABN 21 006 797 897 AFSL 243346). Argentina, Brazil, Chile, China, Colombia, Hong Kong, India, Indonesia, Japan, Malaysia, Mexico, Peru, Philippines, Singapore, South Korea, Taiwan, Thailand are calculated based on NSA numbers. All other countries and aggregates are calculated based on SA numbers. Copyright



Interest Rate Direction

Goldman Sachs

2024-Expecting .75 basis point reduction

2025-Expect 1.00 basis point reduction



For Now: Macroeconomic Outlook

2. Back to sub-2% growth through '25

	2023				2024				2019	2020	2021	2022	2023	2024	2025
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4							
Real GDP	1.1	2.4	5.2	2.5	1.3	2.8	1.0	1.3	2.3	-2.8	5.9	2.1	2.1	2.0	1.6
Unemployment rate (%)	3.5	3.6	3.7	3.7	3.8	3.9	4.1	4.2	3.7	8.1	5.4	3.6	3.6	4.0	4.0
PCE Inflation (%Y/Y)	4.6	3.9	3.3	2.8	2.8	2.8	2.5	2.5	1.5	1.1	4.0	5.6	3.7	2.5	2.5
Core PCE Inflation (%Y/Y)	4.8	4.6	3.8	3.2	3.1	2.9	2.8	2.5	1.7	1.3	3.5	4.8	4.1	2.5	2.2
Fed Funds Rate	4.9	5.1	5.3	5.4	5.4	5.2	5.0	5.0	1.6	0.1	0.1	4.4	5.4	5.0	3.0
Canada Real GDP	2.0	1.3	0.7	1.0	0.5	-	-	-	1.8	-5.2	4.5	3.4	1.1	1.0	1.5
Unemployment rate (%)	5.1	5.4	5.6	5.8	6.1	6.4	-	-	5.8	9.7	7.5	5.3	5.8	6.4	6.0
Mexico Real GDP	3.5	3.4	3.0	2.4	-	-	-	-	-1.8	-8.2	5.0	2.7	1.6	2.4	1.4
Unemployment rate (%)	3.6	3.6	3.8	4.0	3.9	3.8	-	-	5.0	7.9	7.1	4.1	3.8	3.8	4.0

1. Low recession risk for now, barring a significant event.
2. The chart above reflects the “consensus” view among economists polled by the Conference Board.
3. The Armada estimate is slightly more optimistic – 2.5% growth in Q3 and 2.6% growth in Q4.

Note: Consumer spending was boosted by stock market gains

- \$900B in new stock wealth created
- \$288B estimated in additional spending as a result
- \$1.3 trillion economic multiplier applied to that
- 76% of 2023 GDP contribution

Source: Conference Board; Federal Reserve



Fabricators and
Manufacturers Association™

Sources



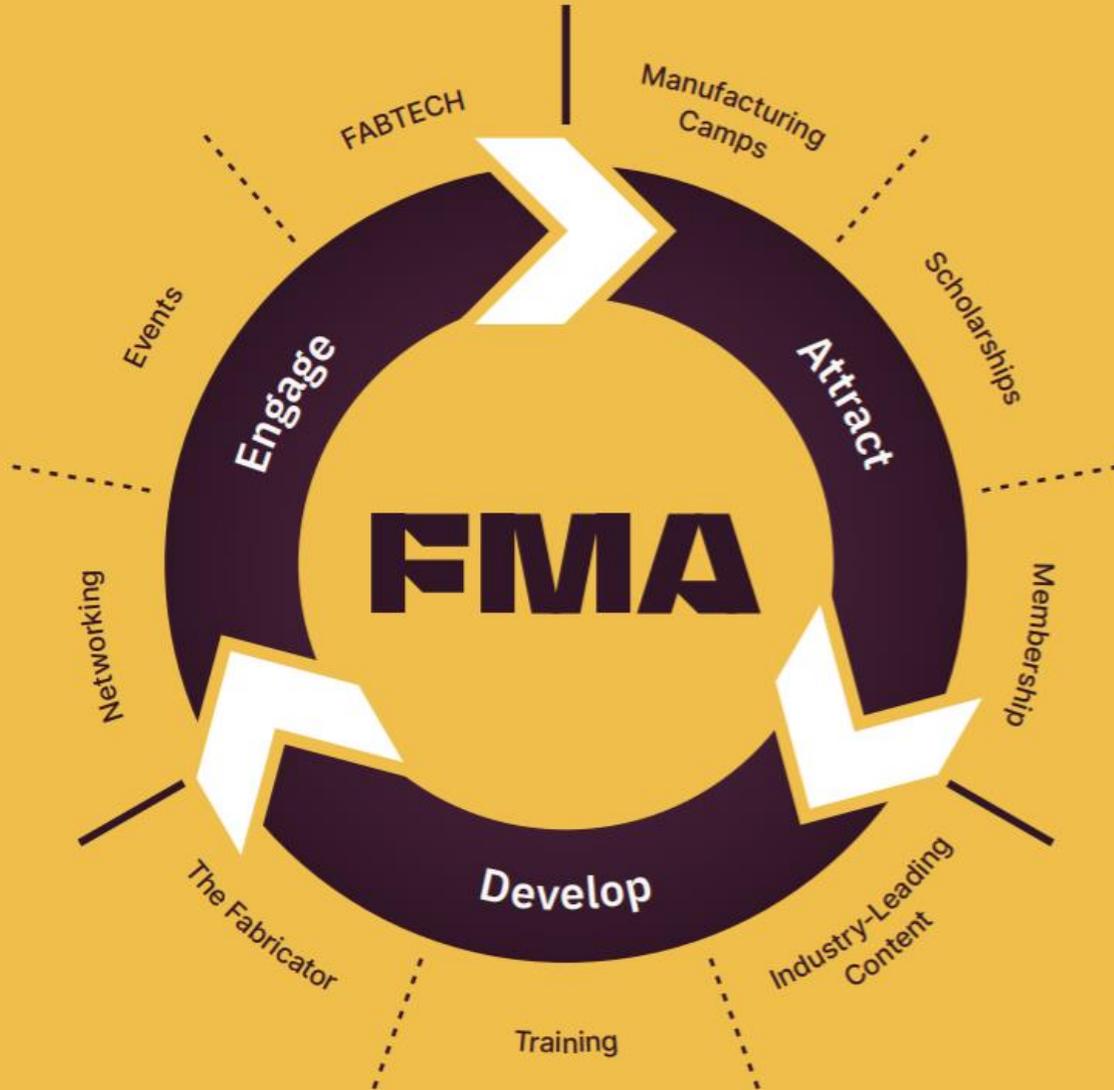
Introduction written by Dr. Chris Kuehl, the economic analyst for the Fabricators and Manufacturers Association (FMA), and managing partner of Armada Corporate Intelligence. Dr. Kuehl is the author of *Fabrinomics*, a biweekly economic analysis e-newsletter produced exclusively for FMA members. For more information, log on to fmamfg.org/fabrinomics.

Armada Corporate Intelligence executives function as trusted strategic advisors to business executives, merging their fundamental roots in corporate intelligence gathering, economic forecasting, and strategy development. To learn more about this service, visit armada-intel.com. FMA members have access to Armada's Executive Intelligence Briefing Service, delivered weekly via email at a reduced cost.





Fabricators and
Manufacturers Association™



We Shape the World.

FMA unites thousands of metal fabrication and manufacturing professionals around a common purpose: to shape the future of our industry, and in turn shape the world.

To do it, we've built a workforce lifecycle that supports individuals and businesses at every point in their development.

► Visit fmamfg.org to learn more.