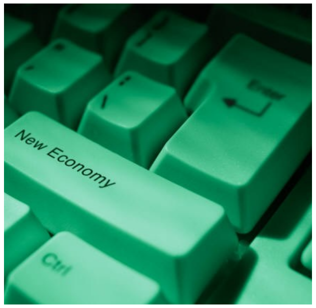

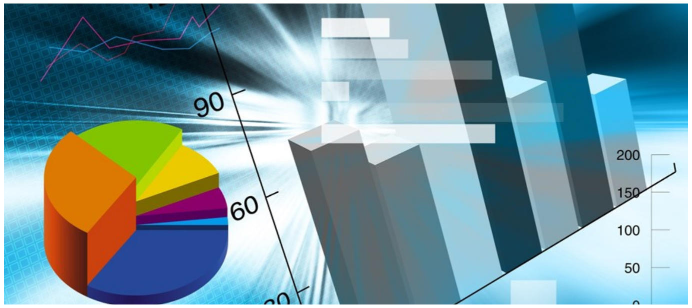

NATIONAL FLUID POWER ASSOCIATION
NFPA

2024

Company Market Outlook

Third Quarter

ITR ECONOMICS

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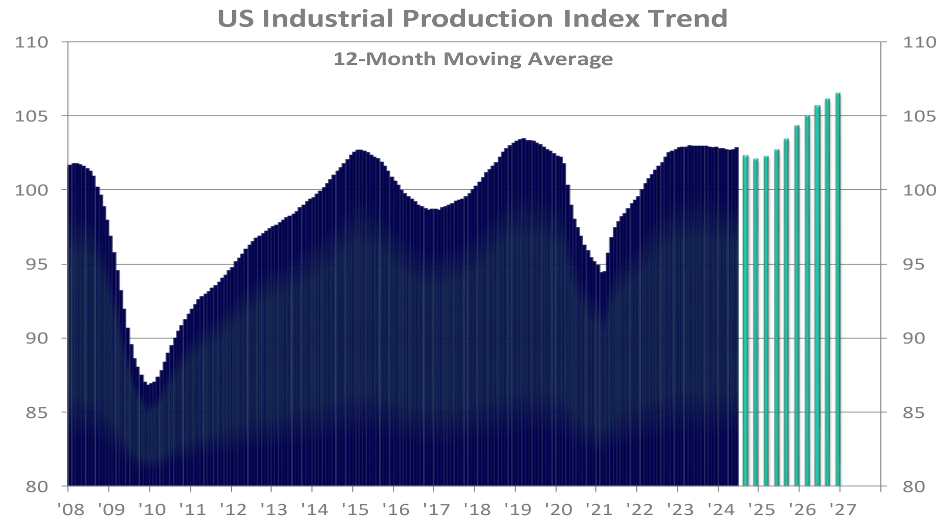
overview

Economic prospects have taken a positive turn, and we have adjusted many of our forecasts upward. On net, the economic evidence indicates that a plateau in 2024 is more likely than the previously forecasted mild recession for B2B spending and industrial activity, though this plateau may have a slight downward bias. Consumer- and services-heavy US Real GDP and US Total Retail Sales will slow in growth in 2024. Leading indicators signal a stronger year for the US macroeconomy come 2025.



Stimulating Factors and How to Harness These Trends

(1) Nearshoring and onshoring: While semiconductor and chip manufacturing dominate the news on onshoring efforts, manufacturers across the economy are moving supply chains closer to home at an accelerated pace post-COVID. Producing closer to home can improve agility, protection of intellectual property, and environmental compliance. Look for opportunities to gain market share from this trend of de-globalization; however, be aware that higher costs are a likely side effect. Margin-improvement is a must to sustain profitability in the coming years.

(2) Government spending: Federal government spending has increased considerably from 2020 onward. Knock-on effects to the private sector have shifted over the course of this business cycle in a milder direction. While the longer-term impacts remain to be seen, the near-term impacts are higher manufacturing and nonresidential construction activity than we would have otherwise seen. Consider targeting markets with exposure to government investments, either directly or indirectly.

(3) Corporate cash balances are elevated: Many businesses were able to pass along costs during the inflationary burst following the pandemic and were therefore able to build up cash holdings. This cash buffer makes the 2022-23 jump in interest rates less of an issue for some. If you are flush with cash, put it to use with a focus on reducing your dependency on labor, embracing new technology to improve efficiency, and prepping for an environment of higher inflation in the years ahead. Consider new products or markets to expand into over the longer term to buck some of the headwinds we see coming in the 2030s.

(4) Resilient consumers: The tight labor market has kept upside pressure on wages. As a result, US Real Personal Incomes are rising, allowing consumers to continue spending at a pace exceeding inflation. Like in the business world, outcomes are divergent. Look for ways to cater to consumers with more discretionary spending. Lower-income consumers are feeling the pinch of inflation and high interest rates more acutely.

Planning for Challenges Ahead

With large amounts of government spending, inflation is likely to be "sticky." Persistent inflation poses financial planning challenges and could increase the difficulty of passing along price increases. A further consequence of inflation is its impact on Federal Reserve policy; a rate cut is still on the table for later this year, but slow progress on inflation increases the risk of higher-for-longer rates. A delayed lowering of rates could prolong economic pain for industries most sensitive to rates.

Additionally, while the tight labor market will likely be a boon for consumers in the coming years, it will constrain opportunities for growth if your business is unable to staff up to meet demand. To that end, efficiency gains in your business—whether through implementation of AI, automation, or process improvements—will allow you to remain competitive.

These challenges are not insurmountable; advanced planning can you help manage risks and get a step ahead of your competition. Remember to zoom out from the day-to-day to reflect on your competitive advantages and your longer-term strategy.

Terminology & Methodology

Data Trends:

Monthly Moving Total (MMT) vs Monthly Moving Average (MMA):

Totals are used when it makes sense to add the data together, as with units sold or total dollars spent. Averages are used when the data cannot be compounded, such as with an index, percent, price level, or interest rates.

3MMT/A and 12MMT/A:

A 3-month or 12-month moving total/average is the total/average of the monthly data for the most recent 3 and 12 months, respectively. The 3MMT/A illustrates the seasonal changes inherent to the data series. The 12MMT/A removes seasonal variation in order to derive the underlying cyclical trend. It is also referred to as the annual total or annual average.

Rates-of-Change:

A rate-of-change figure is the ratio comparing a data series during a specified time period to the same period one year ago. **Rates-of-change** are expressed in terms of the **annual percent change in a 12MMT/A, 3MMT/A, and actual monthly data.**

Rates-of-change reveal whether activity levels are rising or falling compared to last year. A rate-of-change trend illustrates and measures cyclical change and trends in the data.

ITR Economics' three commonly used rates-of-change are the **1/12**, **3/12**, and **12/12**, which represent the year-over-year percent change of a single month, 3MMT/A, and 12MMT/A (respectively).

A rate-of-change above 0 indicates the data is higher than one year prior, while a rate-of-change below 0 indicates the data is below one year earlier.

Our video tutorials offer step-by-step instruction for

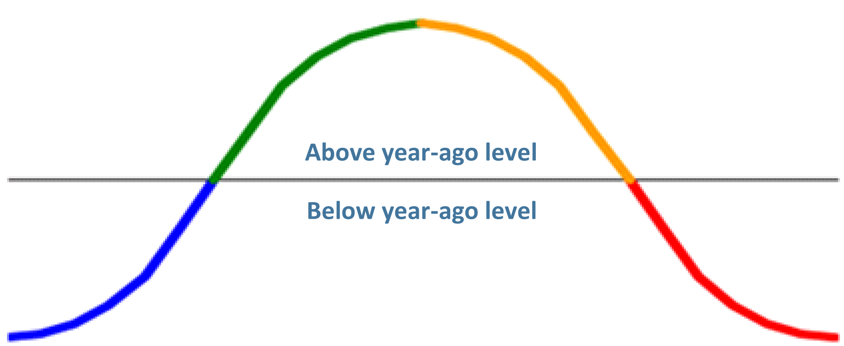
calculating rates-of-change and using leading indicators to see the future.

Business Cycle:

The data trends and rates-of-change identify positions in the business cycle. Those positions are:

Accelerating Growth (B): 12/12 is rising and is above zero; the data trend is accelerating in its ascent and is above the year-ago level. This is the second positive phase of the business cycle.

Slowing Growth (C): 12/12 is declining but remains above zero; the data trend ascent is slowing or has stopped its rise, but it is still above the year-ago level. This is the first negative phase of the business cycle.



Recovery (A): 12/12 is rising but is below zero; the data trend is below the year-ago level and is either heading toward a low or is in the early stages of rise. This is the first positive phase of the business cycle.

Recession (D): 12/12 is declining and is below zero; the data trend is below the year-ago level and the rate of decline is increasing. This is the second and final negative phase of the business cycle.

Business Cycle

Page Number	Industry	Phase	Current	2024	2025	2026
6	NFPA Total Shipments	D	-4.5%	-2.6%	7.0%	2.8%
7	NFPA Hydraulic Shipments	D	-4.7%	-3.9%	6.9%	4.4%
8	NFPA Pneumatic Shipments	D	-4.4%	-3.2%	2.9%	5.5%
10	US Logging Production	A	-10.0%	-8.6%	2.0%	2.0%
10	US Oil and Gas Extraction Production	C	5.6%	2.8%	2.2%	4.2%
10	US Mining and Oil Field Machinery Production	D	-3.6%	-2.7%	5.2%	1.9%
10	US Food Production	A	-2.1%	-0.2%	1.7%	1.5%
10	US Wood Products Production	A	-2.3%	2.6%	2.0%	2.3%
10	US Paper and Products Production	A	-2.4%	2.3%	-1.3%	0.9%
10	US Petroleum Refineries Production	B	1.9%	0.2%	-0.5%	2.4%
10	US Chemicals and Chemical Products Production	C	1.0%	-0.2%	1.2%	0.9%

A RECOVERY

B ACCELERATING GROWTH

C SLOWING GROWTH

D RECESSION

Business Cycle

Page Number	Industry	Phase	Current	2024	2025	2026
10	US Rubber and Plastics Products Production	A	0.0%	0.5%	2.7%	0.8%
10	US Fabricated Metal Products Production	D	-1.1%	-0.9%	1.9%	1.6%
10	US Farm Machinery Shipments	A	-6.6%	6.6%	13.5%	-1.5%
10	US Lawn and Garden Equipment Production	A	-8.7%	-7.0%	7.4%	2.1%
10	US Construction Machinery Production	A	-4.9%	-3.2%	-0.7%	7.1%
10	US Machinery New Orders	C	0.2%	-0.3%	5.0%	4.4%
10	US Instruments Production	A	-1.0%	0.6%	4.1%	2.3%
11	US Metal Working Machinery New Orders	A	-1.6%	3.3%	4.2%	1.9%
11	US Total Renewable Energy Consumption	B	2.0%	2.8%	3.3%	1.4%
11	US Engines, Turbines, Generators, and Other Power Generation Equipment New Orders	C	6.1%	-2.5%	6.5%	5.0%
11	US Engines and Power Transmission Equipment Production	A	-3.7%	-6.6%	4.2%	6.0%

A RECOVERY

B ACCELERATING GROWTH

C SLOWING GROWTH

D RECESSION

Business Cycle

Page Number	Industry	Phase	Current	2024	2025	2026
11	US General Purpose Machinery Production	D	-2.4%	-5.7%	0.3%	5.7%
11	US Material Handling Equipment New Orders	C	3.7%	-4.9%	1.0%	2.2%
11	US Electronic Components Production	B	5.0%	7.0%	11.0%	3.1%
11	US Motor Vehicle Parts Production	C	4.0%	3.1%	-0.5%	3.5%
11	US Ship-Building and Repair Production	D	-1.0%	1.6%	3.0%	-1.0%
11	US Medical Equipment and Supplies Production	C	0.8%	-1.1%	0.9%	0.8%
11	US Heavy-Duty Truck Production	C	1.4%	-3.9%	2.7%	2.6%
11	North America Light Vehicle Production	C	4.7%	0.5%	0.9%	3.7%
11	US Industrial Production	D	-0.1%	-0.8%	2.2%	2.1%
11	US Electric and Gas Utilities Production	B	1.4%	2.5%	0.1%	2.0%
11	US Plastics Products Production	A	-0.2%	1.1%	2.6%	0.4%

A
RECOVERY

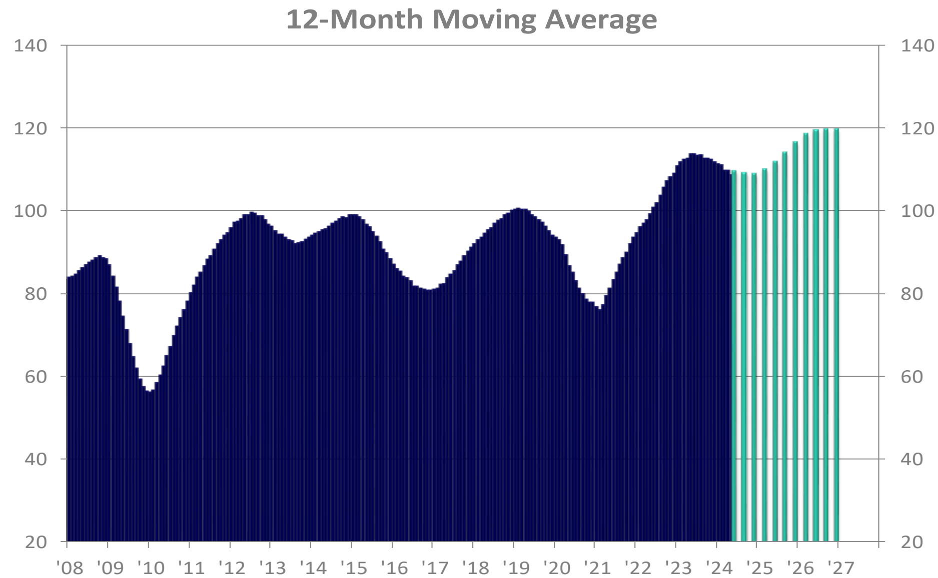
B
ACCELERATING GROWTH

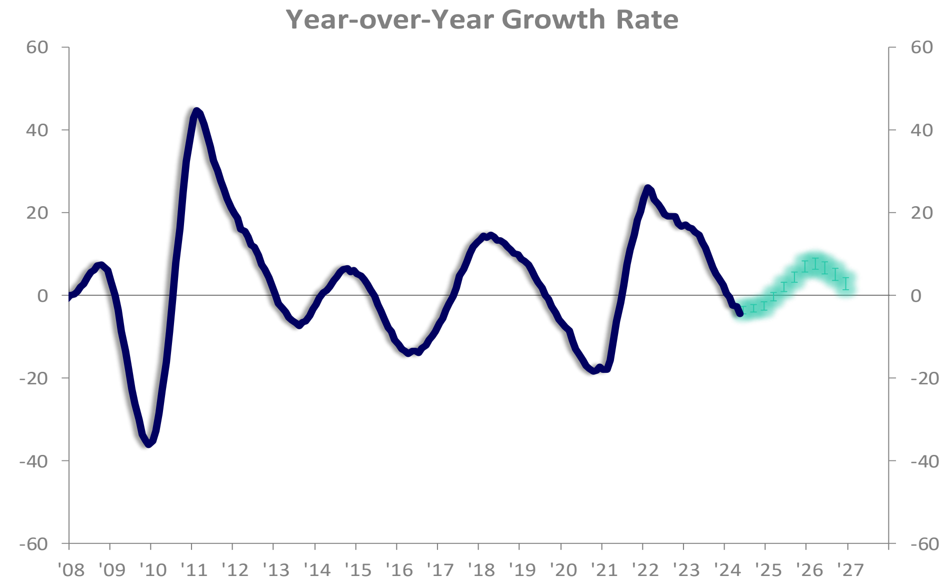
C
SLOWING GROWTH

D
RECESSION

NFPA Total Shipments

Total Shipments to Rise in 2025-26 Due in Part to Increased Consumer and B2B Spending





Industry Outlook

2024: -2.6%

2025: 7.0%

2026: 2.8%

Outlook & Supporting Evidence

- Annual NFPA Total Shipments are declining and down 4.6% from a mid-2023 peak. Expect Total Shipments to decline through the remainder of this year, tracking closer to the lower end of our forecast range. Consumers are dealing with tough financial circumstances, characterized by high interest rates and declining inflation-adjusted savings balances. Despite these conditions, middle-to-upper-income consumers continue to show resiliency and are buying at record levels.
- Incomes are rising alongside a tight labor market, which will eventually reinvigorate both consumer and business-to-business spending, leading to Total Shipments rise beginning in early 2025.
- Total Shipments will rise throughout 2025 and 2026, with Shipments ending the forecast period roughly 10% above the current level.

Phase & Amplitudes

Phase D

Recession

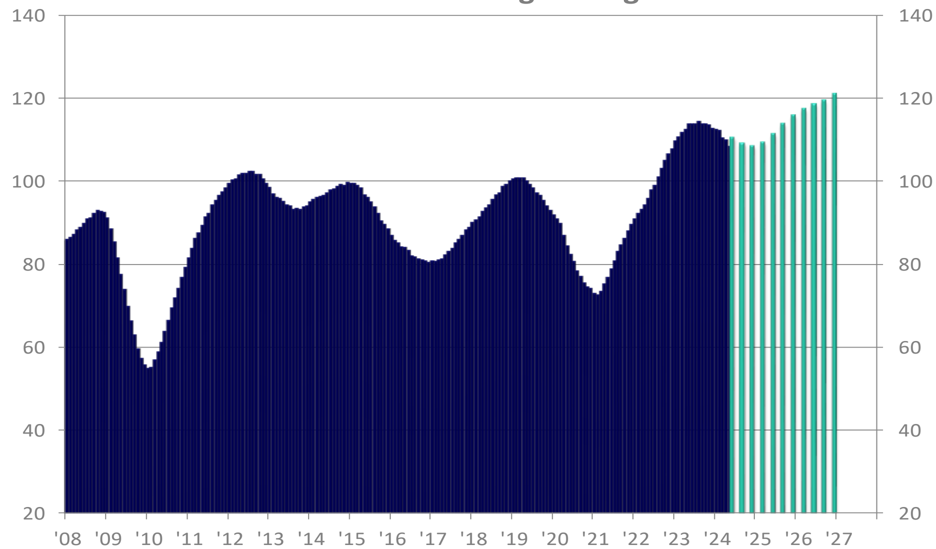
May 2024 Annual Growth Rate (12/12): -4.5%

May 2024 Annual Average (12MMA): 108.5

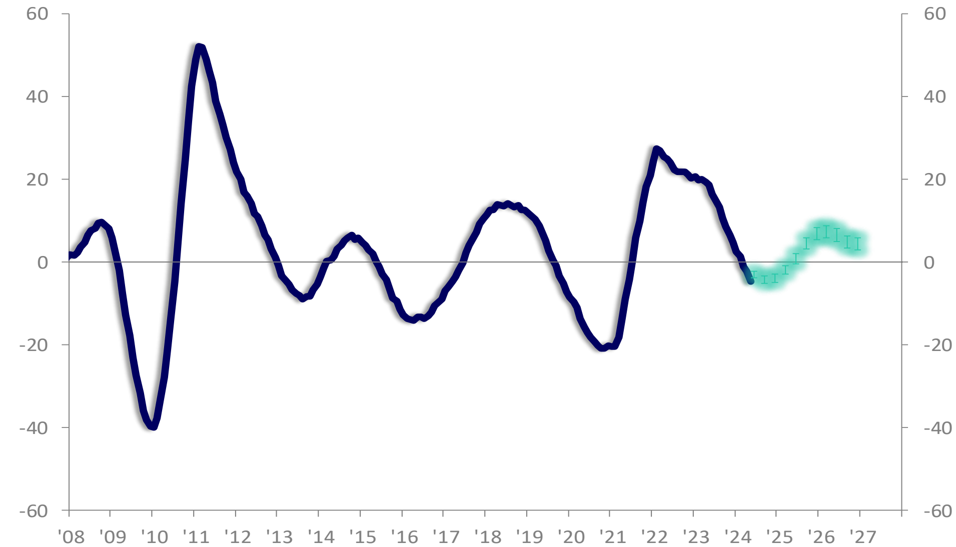
NFPA Hydraulic Shipments

Hydraulic Shipments to Decline This Year From Manufacturing Weakness. Rise in 2025-26

12-Month Moving Average



Year-over-Year Growth Rate



Industry Outlook

2024: -3.9%

2025: 6.9%

2026: 4.4%

Outlook & Supporting Evidence

- Annual NFPA Hydraulic Shipments will decline for the remainder of the year. There is weakness in some manufacturing segments of the macroeconomy, including General Purpose Machinery and Engine and Power Transmission Equipment, stemming from elevated interest rates and lower utilization of existing capacity.
- Expect Hydraulic Shipments to rise beginning in 2025, as foreshadowed by the ITR Leading Indicator™ and the US ISM PMI (Purchasing Managers Index). Rise will last through at least 2026.
- Despite affordability constraints, demand for new homes is strong and higher permitting bodes well for related machinery demand in 2025. On the flip side, the nonresidential sector faces decline next year.

Phase & Amplitudes

Phase D

Recession

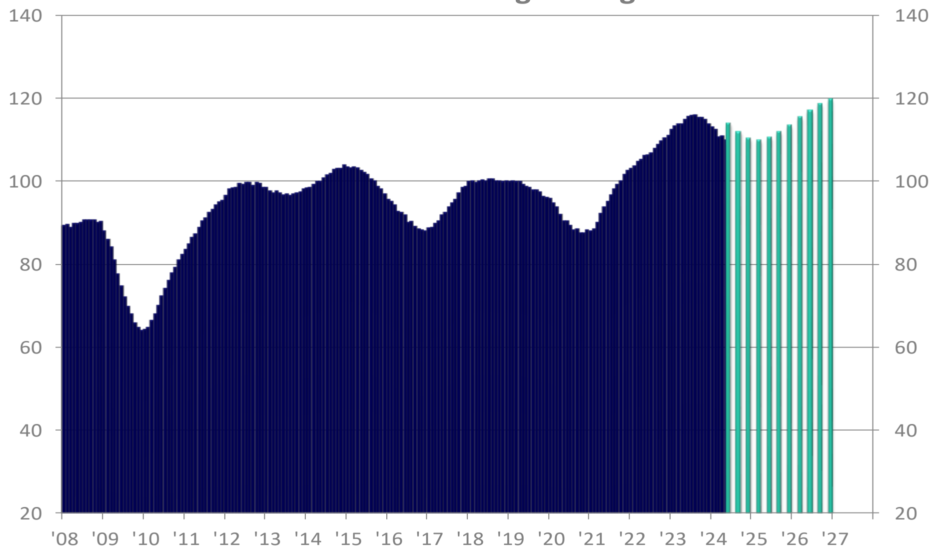
May 2024 Annual Growth Rate (12/12): -4.7%

May 2024 Annual Average (12MMA): 108.4

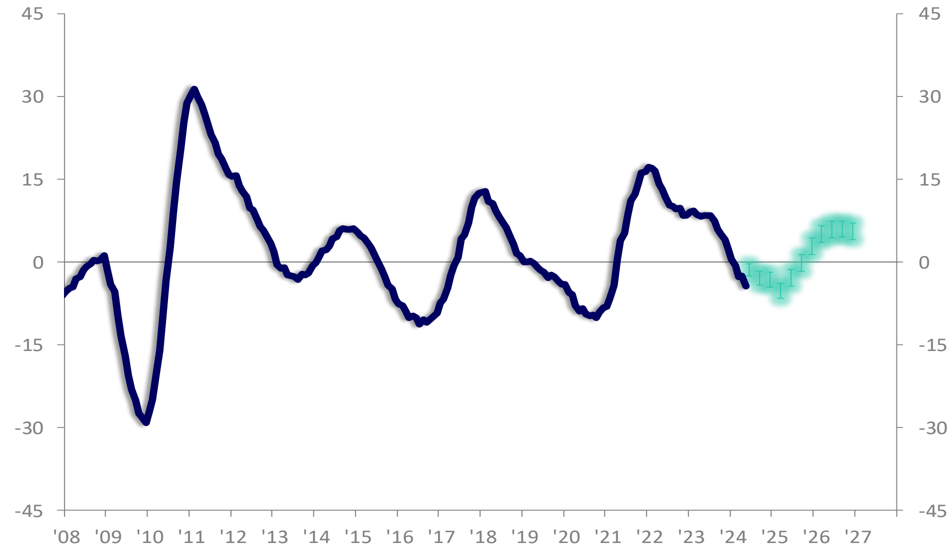
NFPA Pneumatic Shipments

Capex Will Slow This Year; High Corporate Cash Holdings Are an Upside

12-Month Moving Average



Year-over-Year Growth Rate



Industry Outlook

2024: -3.2%

2025: 2.9%

2026: 5.5%

Outlook & Supporting Evidence

- Annual NFPA Pneumatic shipments will decline into early 2025. Given a plateau in industrial activity and still-high borrowing costs, businesses are likely to be cautious investing in new machinery. Expect price sensitivity in B2B spending as wage inflation, though slowing, squeezes margins.
- Heavy-Duty Truck Production will decline into early next year from a flat industrial sector and less freight activity. Light Vehicle Production will generally plateau through the first half of 2025 due to opposing factors, including the rebuilding of inventory and still-elevated interest rates.
- Semiconductor and other high-tech segments are an area of opportunity, due in part from high demand for electronics and government incentives.
- There is an upside risk to our forecast from the elevated level of corporate cash that the manufacturing sector currently has on hand.

Phase & Amplitudes

Phase D

Recession

May 2024 Annual Growth Rate (12/12): -4.4%

May 2024 Annual Average (12MMA): 109.9

NFPA Markets: Forecast Summary

Economic Opportunities for NFPA Members:

- Demand for renewable energy for both residential and commercial uses is growing, as outlined by rising US Total Renewable Energy Consumption. Government investments in and financial incentives for renewable energy will continue to bolster demand. NFPA members should consider if increasing their exposure to the renewable sector will generate a high ROI.
- Rising US Farm Machinery Shipments and a tentative transition to Phase A, Recovery, for US Food Production are highlighting green shoots in the agriculture and food industries. This trend will likely hold given the rising world population and the inelastic nature of these products.
- US Single-Family Housing Starts is on a rising trend, aside from a brief dip late this year, that is expected to persist through at least 2026. Homebuilders will require plentiful lumber, appliances, and other construction materials to alleviate the housing supply issue.

Economic Risks for NFPA Members:

- Changes in trade policies, including the imposition of recent steel tariffs, can disrupt the global supply chain and impact the import and export of fluid power components and equipment. Tariffs on raw materials or finished products can increase costs for NFPA members, affecting their competitiveness in the market. NFPA should closely monitor trade policies and adjust business strategies where appropriate.
- If the Federal Reserve fails to lower borrowing costs by early 2025, it may extend downward pressure on capex. Changes to interest rates are lagged, and if the Fed delays cuts past our anticipated time frame, positive impacts on capex will also be delayed.
- While middle-to-upper-income consumers remain relatively strong, know which consumer markets you are exposed to, as those with lower incomes are being hit harder by inflation. The credit card delinquency rate is slowly rising and inflation-adjusted personal savings balances are declining. Consider the demographics downstream from your business.

Management Objectives:

- Be prepared to take advantage of the macroeconomic expansion that is expected in a majority of end-use markets in 2025 and 2026. Line up suppliers to ensure you can handle higher volumes and allocate appropriate resources to maximize your growth opportunities.
- Research and potentially invest in process efficiencies that can be accomplished by utilizing AI, and use any cost-savings to reinvest in your business and employees, given the overall macroeconomic growth that is expected for the remainder of this decade.
- When looking for skilled labor, consider alternative hiring channels. The labor market is expected to remain tight through the remainder of the decade, given US demographic trends. Consider establishing longer-term recruitment and training programs by working with community colleges, trade schools, or local job placement programs.

NFPA Markets

End-Use Markets	R-o-C	Sep-24	Dec-24	Mar-25	Jun-25	Sep-25	Dec-25	Mar-26	Jun-26	Sep-26	Dec-26	Mar-27	Jun-27
US Logging Production	12/12	-9.0%	-8.6%	-6.3%	-3.5%	-0.7%	2.0%	3.3%	3.6%	2.9%	2.0%	1.4%	0.9%
US Oil and Gas Extraction Production	12/12	4.4%	2.8%	1.9%	1.7%	1.8%	2.2%	3.3%	3.8%	4.4%	4.2%	3.4%	3.0%
US Mining and Oil Field Machinery Production	12/12	-2.9%	-2.7%	-2.3%	0.1%	3.0%	5.2%	6.6%	6.0%	4.5%	1.9%	0.3%	-1.2%
US Food Production	12/12	-1.1%	-0.2%	0.9%	1.4%	1.5%	1.7%	1.8%	2.1%	1.9%	1.5%	1.0%	0.2%
US Wood Products Production	12/12	0.8%	2.6%	4.2%	3.9%	2.9%	2.0%	1.9%	2.3%	2.8%	2.3%	2.0%	1.1%
US Paper and Products Production	12/12	1.0%	2.3%	2.5%	1.0%	-0.7%	-1.3%	-1.0%	0.3%	1.1%	0.9%	0.0%	-0.9%
US Petroleum Refineries Production	12/12	1.3%	0.2%	-1.2%	-1.9%	-1.7%	-0.5%	1.3%	2.7%	3.0%	2.4%	1.8%	1.1%
US Chemicals and Chemical Products Production	12/12	0.4%	-0.2%	-0.1%	0.3%	0.8%	1.2%	1.5%	1.4%	1.3%	0.9%	0.4%	0.1%
US Rubber and Plastics Products Production	12/12	0.1%	0.5%	1.2%	2.0%	2.6%	2.7%	2.1%	1.6%	1.4%	0.8%	0.4%	0.0%
US Fabricated Metal Products Production	12/12	-1.1%	-0.9%	-0.9%	-0.4%	0.6%	1.9%	2.9%	3.2%	2.6%	1.6%	0.8%	0.7%
US Farm Machinery Shipments	12/12	0.0%	6.6%	9.6%	13.3%	16.9%	13.5%	8.1%	2.8%	-0.7%	-1.5%	0.0%	4.0%
US Lawn and Garden Equipment Production	12/12	-8.7%	-7.0%	-2.3%	1.8%	5.2%	7.4%	7.5%	6.7%	4.6%	2.1%	0.4%	-0.3%
US Construction Machinery Production	12/12	-3.9%	-3.2%	-3.1%	-3.9%	-3.3%	-0.7%	2.8%	7.2%	8.7%	7.1%	5.5%	2.4%
US Machinery New Orders	12/12	-0.2%	-0.3%	-0.1%	0.4%	2.1%	5.0%	6.7%	7.5%	6.6%	4.4%	2.5%	0.6%
US Instruments Production	12/12	-0.4%	0.6%	1.4%	2.4%	3.4%	4.1%	4.3%	3.8%	3.1%	2.3%	1.6%	1.2%

A RECOVERY
B ACCELERATING GROWTH
C SLOWING GROWTH
D RECESSION

NFPA Markets

End-Use Markets	R-o-C	Sep-24	Dec-24	Mar-25	Jun-25	Sep-25	Dec-25	Mar-26	Jun-26	Sep-26	Dec-26	Mar-27	Jun-27
US Metal Working Machinery New Orders	12/12	1.5%	3.3%	2.0%	1.5%	2.7%	4.2%	5.3%	4.9%	3.7%	1.9%	1.7%	1.0%
US Total Renewable Energy Consumption	12/12	2.5%	2.8%	3.5%	3.5%	3.5%	3.3%	2.9%	2.6%	2.2%	1.4%	1.9%	2.3%
US Engines, Turbines, Generators, and Other Power Generation Equipment New Orders	12/12	-0.5%	-2.5%	-3.0%	-0.4%	3.0%	6.5%	8.1%	8.5%	7.2%	5.0%	1.5%	-0.9%
US Engines and Power Transmission Equipment Production	12/12	-4.9%	-6.6%	-3.0%	-1.9%	1.0%	4.2%	5.7%	7.4%	6.9%	6.0%	4.6%	2.9%
US General Purpose Machinery Production	12/12	-4.8%	-5.7%	-5.1%	-3.8%	-1.7%	0.3%	1.6%	3.3%	4.9%	5.7%	5.3%	3.1%
US Material Handling Equipment New Orders	12/12	-2.0%	-4.9%	-6.3%	-5.0%	-1.6%	1.0%	2.7%	3.2%	2.3%	2.2%	2.1%	1.2%
US Electronic Components Production	12/12	6.2%	7.0%	8.9%	10.4%	10.9%	11.0%	9.5%	7.9%	5.9%	3.1%	1.1%	0.1%
US Motor Vehicle Parts Production	12/12	3.3%	3.1%	1.3%	-0.3%	-0.8%	-0.5%	1.1%	3.2%	4.1%	3.5%	2.6%	2.0%
US Ship-Building and Repair Production	12/12	-0.2%	1.6%	4.1%	4.8%	4.4%	3.0%	0.7%	-0.8%	-1.2%	-1.0%	0.3%	1.2%
US Medical Equipment and Supplies Production	12/12	0.3%	-1.1%	-2.0%	-1.7%	-0.7%	0.9%	2.1%	2.1%	1.8%	0.8%	0.0%	-0.5%
US Heavy-Duty Truck Production	12/12	-3.8%	-3.9%	-5.9%	-4.7%	-1.1%	2.7%	5.4%	5.9%	4.5%	2.6%	0.7%	-1.3%
North America Light Vehicle Production	12/12	1.2%	0.5%	-0.5%	-1.0%	-0.4%	0.9%	3.5%	5.3%	5.1%	3.7%	2.4%	0.9%
US Industrial Production	12/12	-0.6%	-0.8%	-0.6%	-0.1%	1.1%	2.2%	2.7%	2.9%	2.6%	2.1%	1.9%	1.9%
US Electric and Gas Utilities Production	12/12	1.2%	2.5%	2.6%	1.1%	0.4%	0.1%	0.6%	1.8%	2.5%	2.0%	1.2%	0.4%
US Plastics Products Production	12/12	0.5%	1.1%	1.7%	2.2%	2.4%	2.6%	2.3%	1.8%	1.4%	0.4%	0.0%	-0.2%

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INDICATORS

US Leading Indicators

Indicator	Direction		
	3Q24	4Q24	1Q25
ITR Leading Indicator™	🟢	🟢	N/A
ITR Retail Sales Leading Indicator™	🟢	🟢	🟢
US OECD Leading Indicator	🟢	🟢	🟢
US ISM PMI (Purchasing Managers Index)	🟢	🟢	🟢
US Total Capacity Utilization Rate	🔴	🔴	N/A

Green denotes that the indicator signals cyclical rise for the economy in the given quarter. Red denotes the opposite.

What it means for the US economy

- Many of our leading indicators are flashing green and signaling a stronger economy in 2025, though the strength of rise is weak and we are still seeing some signs of stress for the economy, which will likely persist through the end of this year.

- While Retail Sales are still rising, we anticipate that the rate of rise will be somewhat muted in the coming quarters. Retail Sales will not decline, but they are not likely to exhibit growth rates similar to those seen from 2020 to 2022, as we have moved into a different consumer environment, given lower savings rates and increased loan delinquency rates.

- We have yet to see well-defined rise in the US Total Industry Capacity Utilization Rate, unlike the performance of other leading indicators, highlighting the probability of a softening manufacturing sector in the near term.

While most leading indicators are flashing green, downside pressures will linger this year. Overall, the rest of this year will be a bit sluggish. However, it will be a good time to reevaluate your competitive advantages and improve upon your strategies so that you can capitalize on the strong economy expected in 2025 and 2026.

Appendix — Market Definitions

US Logging Production Index — This industry comprises establishments primarily engaged in one or more of the following: (1) cutting timber; (2) cutting and transporting timber; and (3) producing wood chips in the field. Source: Federal Reserve Board. NAICS Code: 1133. 2017 = 100, not seasonally adjusted (NSA).

US Oil and Gas Extraction Production Index — Includes exploration and extraction of crude petroleum and natural gas; drilling, completing, and equipping wells; operating separators, emulsion breakers, desilting equipment, and field gathering lines for crude petroleum and natural gas; and all other activities in the preparation of oil and gas up to the point of shipment from the producing property. Also includes the production of crude petroleum, the mining and extraction of oil from oil shale and oil sands, and the production of natural gas, sulfur recovery from natural gas, and recovery of hydrocarbon liquids. Source: Federal Reserve Board. NAICS Code: 211. Index, 2017 = 100, NSA.

US Mining and Oil Field Machinery Production Index — This industry comprises establishments primarily engaged in manufacturing oil and gas field and underground mining machinery and equipment. Includes coal breakers, cutters, and pulverizers, core drills, mining cars, derricks, drilling equipment, rock crushing equipment, etc. Source: Federal Reserve Board. NAICS Code: 33313. Index, 2017 = 100, NSA.

US Food Production Index — Industries in the US Food Manufacturing subsector transform livestock and agricultural products into products for intermediate or final consumption. The industry groups are distinguished by the raw materials (generally of animal or vegetable origin) processed into food products. The food products manufactured in these establishments are typically sold to wholesalers or retailers for distribution to consumers. Source: Federal Reserve Board. NAICS Code: 311. Index, 2017 = 100, NSA.

US Wood Products Production Index — Industries in the Wood Product Manufacturing subsector manufacture wood products, such as lumber, plywood, veneers, wood containers, wood flooring, wood trusses, manufactured homes (i.e., mobile homes), and prefabricated wood buildings. The production processes of the Wood Product Manufacturing subsector include sawing, planing, shaping, laminating, and assembling of wood products starting from logs that are cut into bolts, or lumber that then may be further cut, or shaped by lathes or other shaping tools. The lumber or other transformed wood shapes may also be subsequently planed or smoothed, and assembled into finished products, such as wood containers. The Wood Product Manufacturing subsector includes establishments that make wood products from logs and bolts that are sawed and shaped, and establishments that purchase sawed lumber and make wood products. With the exception of sawmills and wood preservation establishments, the establishments are grouped into industries mainly based on the specific products manufactured. Source: Federal Reserve Board. NAICS Code: 321. Index, 2017 = 100, NSA.

Appendix — Market Definitions

US Paper and Products Production Index — Industries in the Paper Manufacturing subsector make pulp, paper, or converted paper products. The manufacturing of these products is grouped together because they constitute a series of vertically connected processes. More than one is often carried out in a single establishment. There are essentially three activities. The manufacturing of pulp involves separating the cellulose fibers from other impurities in wood or used paper. The manufacturing of paper involves matting these fibers into a sheet. Converted paper products are made from paper and other materials by various cutting and shaping techniques and includes coating and laminating activities. Source: Federal Reserve Board. NAICS Code: 322. Index, 2017 = 100, NSA.

US Petroleum Refineries Production Index — This industry comprises establishments primarily engaged in refining crude petroleum into refined petroleum. Petroleum refining involves one or more of the following activities: (1) fractionation; (2) straight distillation of crude oil; and (3) cracking. Source: Federal Reserve Board. NAICS Code: 32411. Index, 2017 = 100, NSA.

US Chemicals and Chemical Products Production Index — The US Chemical Manufacturing subsector is based on the transformation of organic and inorganic raw materials by a chemical process and the formulation of products. This subsector distinguishes the production of basic chemicals that comprise the first industry group from the production of intermediate and end products produced by further processing of basic chemicals that make up the remaining industry groups. Source: Federal Reserve Board. NAICS Code: 325. Index, 2017 = 100, NSA.

US Rubber and Plastics Products Production Index — Industries in the Plastics and Rubber Products Manufacturing subsector make goods by processing plastics materials and raw rubber. The core technology employed by establishments in this subsector is that of plastics or rubber product production. Plastics and rubber are combined in the same subsector because plastics are increasingly being used as a substitute for rubber; however the subsector is generally restricted to the production of products made of just one material, either solely plastics or rubber. Source: Federal Reserve Board. NAICS Code: 326. Index, 2017 = 100, NSA.

US Fabricated Metal Products Production Index — Industries in the Fabricated Metal Product Manufacturing subsector transform metal into intermediate or end products, other than machinery, computers and electronics, and metal furniture, or treat metals and metal formed products fabricated elsewhere. Important fabricated metal processes are forging, stamping, bending, forming, and machining, used to shape individual pieces of metal; and other processes, such as welding and assembling, used to join separate parts together. Establishments in this subsector may use one of these processes or a combination of these processes. Source: Federal Reserve Board. NAICS Code: 332. Index, 2017 = 100, NSA.

Appendix — Market Definitions

US Farm Machinery Shipments — Total shipments in the United States includes agricultural and farm machinery and equipment, and other turf and grounds care equipment, including planting, harvesting, and grass mowing equipment (except lawn and garden-type). Source: US Census Bureau. NAICS Code: 333111. Measured in billions of dollars, NSA.

US Lawn and Garden Equipment Production Index — This U.S. industry comprises establishments primarily engaged in manufacturing powered lawnmowers, lawn and garden tractors, and other home lawn and garden equipment, such as tillers, shredders, yard vacuums, and leaf blowers. Source: Federal Reserve Board. NAICS Code: 333112. Index, 2017 = 100, NSA.

US Construction Machinery Production Index — This industry comprises establishments primarily engaged in manufacturing construction machinery, surface mining machinery, and logging equipment. Includes backhoes, bulldozers, construction tractors, pile-driving equipment, off-highway trucks, road graders, etc. Source: Federal Reserve Board. NAICS Code: 33312. Index, 2017 = 100, NSA.

US Machinery New Orders — New orders for machinery in the United States. Industries in the machinery manufacturing subsector create end products that apply mechanical force. Includes machinery used for saw mills and woodworking, plastics and rubber, paper, textiles, printing, food, and semiconductor industries. Source: US Census Bureau. NAICS Code: 3332. Measured in billions of dollars, NSA.

US Instruments Production Index — This industry comprises establishments primarily engaged in manufacturing navigational, measuring, electromedical, and control instruments. Examples of products made by these establishments are aeronautical instruments, appliance regulators and controls (except switches), laboratory analytical instruments, navigation and guidance systems, and physical properties testing equipment. Source: Federal Reserve Board. NAICS Code: 3345. Index, 2017 = 100, NSA.

US Metal Working Machinery New Orders — New orders for metal working machinery in the United States. This industry comprises establishments primarily engaged in manufacturing metalworking machinery, such as metal cutting and metal forming machine tools; cutting tools; and accessories for metalworking machinery; special dies, tools, jigs, and fixtures; industrial molds; rolling mill machinery; assembly machinery; coil handling, conversion, or straightening equipment; and wire drawing and fabricating machines. Source: US Census Bureau. NAICS Code: 33351. Measured in billions of dollars, NSA.

Appendix — Market Definitions

US Total Renewable Energy Consumption — Total renewable energy consumption in the United States, measured in quadrillions of btu, NSA. Renewable energy is from Energy resources that are naturally replenishing but flow-limited. They are virtually inexhaustible in duration but limited in the amount of energy that is available per unit of time. Renewable energy resources include biomass, hydro, geothermal, solar, wind, ocean thermal, wave action, and tidal action. Energy consumption is the use of energy as a source of heat or power or as a raw material input to a manufacturing process. Source: US Energy Information Administration.

US Engines, Turbines, Generators, and Other Power Generation Equipment New Orders — New orders in the United States for engines, turbines, power transmission equipment, generators, gears, motors, drives, speed changers, etc. Source: US Census Bureau. NAICS Code: 3336. Measured in billions of dollars, NSA.

US Engines and Power Transmission Equipment Production Index — This U.S. industry comprises establishments primarily engaged in manufacturing gears, speed changers, and industrial high-speed drives (except hydrostatic) and mechanical power transmission equipment (except motor vehicle and aircraft), such as plain bearings, clutches (except motor vehicle and electromagnetic industrial control), couplings, joints, and drive chains and internal combustion engines (except automotive gasoline and aircraft). Source: Federal Reserve Board. NAICS Code: 333612-8. Index, 2017 = 100, NSA.

US General Purpose Machinery Production Index — General purpose machinery manufacturing, including pumps and compressors, material handling equipment, elevators and moving stairways, conveyors, industrial trucks, power driven hand tool manufacturing, welding and soldering equipment, packaging machinery, fluid power manufacturing, etc. Source: Federal Reserve Board. NAICS Code: 3339. Index, 2017 = 100, NSA.

US Material Handling Equipment New Orders — New orders for material handling equipment in the United States. This industry comprises establishments primarily engaged in manufacturing material handling equipment, such as elevators and moving stairs; conveyors and conveying equipment; overhead traveling cranes, hoists, and monorail systems; and industrial trucks, tractors, trailers, and stacker machinery. Source: US Census Bureau. NAICS Code: 33392. Measured in billions of dollars, NSA.

US Electronic Components Production Index — This industry comprises establishments primarily engaged in manufacturing semiconductors and other components for electronic applications. Examples of products made by these establishments are capacitors, resistors, microprocessors, bare and loaded printed circuit boards, electron tubes, electronic connectors, and computer modems. Source: Federal Reserve Board. NAICS Code: 3344. Index, 2017 = 100, NSA.

Appendix — Market Definitions

US Motor Vehicle Parts Production Index — Production index for the manufacture of motor vehicle parts. Includes the following parts for motor vehicles: engines and engine parts, alternators, generators, automotive lighting fixtures, coils and ignitions, distributors, spark plugs, windshield washer pumps, fuel pumps, starters, voltage regulators, wiring harnesses, steering and suspension components, brake systems, transmission and power train parts, seating and interior trim, fenders, tops, body parts, air bags, catalytic converters, mufflers, radiators, wheels, air conditioners, and other motor vehicle parts. Source: Federal Reserve Board. NAICS Code: 3363. Index, 2017 = 100, NSA.

US Ship-Building and Repair Production Index — This U.S. industry comprises establishments primarily engaged in operating a shipyard. Shipyards are fixed facilities with drydocks and fabrication equipment capable of building a ship, defined as watercraft typically suitable or intended for other than personal or recreational use. Activities of shipyards include the construction of ships, their repair, conversion and alteration, the production of prefabricated ship and barge sections, and specialized services, such as ship scaling. Source: Federal Reserve Board. NAICS Code: 336611. Index, 2017 = 100, NSA.

US Medical Equipment and Supplies Production Index — Medical equipment and supplies manufacturing index for the United States. Examples of products made by these establishments are surgical and medical instruments, surgical appliances and supplies, dental equipment and supplies, orthodontic goods, ophthalmic goods, dentures, and orthodontic appliances. Source: Federal Reserve Board. NAICS Code: 3391. Index, 2017 = 100, NSA.

US Heavy-Duty Truck Production Index — Heavy-Duty Truck Production. This industry comprises establishments primarily engaged in (1) manufacturing heavy duty truck chassis and assembling complete heavy duty trucks, buses, heavy duty motor homes, and other special purpose heavy duty motor vehicles for highway use or (2) manufacturing heavy duty truck chassis only. Includes trucks weighing 14,000 pounds or more. Source: Federal Reserve Board. NAICS Code: 33612. Index, 2017 = 100, NSA.

North America Light Vehicle Production — Passenger car and light-duty truck production (classes 1-3) in the US, Canada, and Mexico combined, including transplants. A passenger car is a road motor vehicle, other than a motorcycle, intended for the carriage of passengers and designed to seat no more than nine persons (including the driver). Source: WardsAuto. Measured in millions of units, NSA.

Appendix — Market Definitions

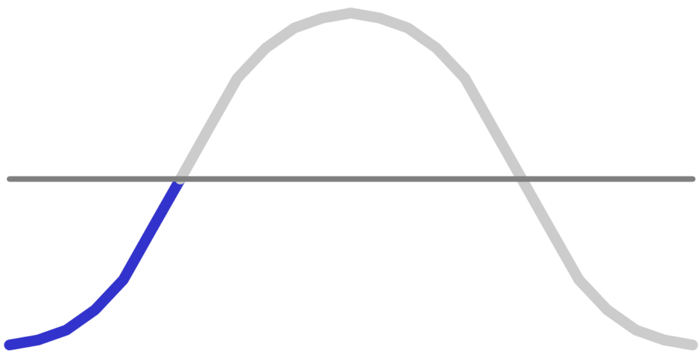
US Industrial Production Index — Index of total industrial production in the United States; includes manufacturing, mining, and utilities. Source: Federal Reserve Board. Index, 2017 = 100, NSA.

US Electric and Gas Utilities Production Index — Index of electric and gas utilities production in the United States. This industry includes establishments primarily engaged in operating electric power generation facilities. These facilities convert other forms of energy, such as water power (i.e., hydroelectric), fossil fuels, nuclear power, and solar power, into electrical energy. The establishments in this industry produce electric energy and provide electricity to transmission systems or to electric power distribution systems. This industry also includes: (1) establishments primarily engaged in operating gas distribution systems (e.g., mains, meters); (2) establishments known as gas marketers that buy gas from the well and sell it to a distribution system; (3) establishments known as gas brokers or agents that arrange the sale of gas over gas distribution systems operated by others; and (4) establishments primarily engaged in transmitting and distributing gas to final consumers. Source: Federal Reserve Board. NAICS Code: 2211, 2212. Index, 2017 = 100, NSA.

US Plastics Products Production Index — This industry group comprises establishments primarily engaged in processing new or spent (i.e., recycled) plastics resins into intermediate or final products, using such processes as compression molding, extrusion molding, injection molding, blow molding, and casting. Within most of these industries, the production process is such that a wide variety of products can be made. Source: Federal Reserve Board. NAICS Code: 3261. Index, 2017 = 100, NSA.

Management Objectives™

Phase



A

1 Scrupulously evaluate the supply chain

2 Model positive leadership (culture turns to behavior)

3 Start to phase out marginal opportunities (products, processes, people); repair margins

4 Perform due diligence on customers and extend credit

5 Be on good terms with a banker; you will need the cash more now than in any other phase

6 Invest in customer market research; know what they value and market/price accordingly

7 Hire key people and implement company-wide training programs ahead of Phase B

8 Allocate additional resources to sales and marketing

9 Invest in system/process efficiencies

10 Make opportunistic capital and business acquisitions; use pessimism to your advantage

Management Objectives™

1 Ensure quality control keeps pace with increasing volume

2 Invest in workforce development: hiring, training, retention

3 Ensure you have the right price escalator; space out price increases

4 Maximize your profit margins through differentiation; stand out from the crowd and set yourself apart

5 Use improved cash flow to strategically position the business to beat the business cycle

6 Expand credit to customers

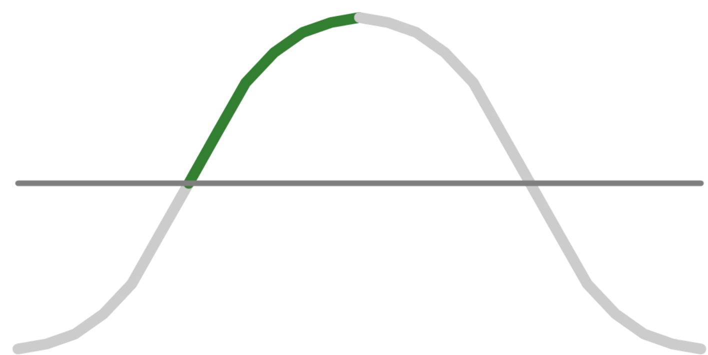
7 Improve corporate governance (rent a CFO; establish a board of advisors or board of directors)

8 Communicate competitive advantages; build the brand

9 Query users for what they want and what is important to them

10 Sell the business in a climate of maximum goodwill

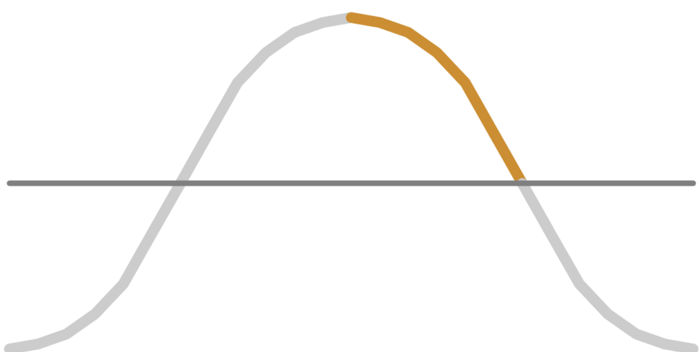
Phase



B

Management Objectives™

Phase



C

1 Know if your markets are headed for a soft landing or a hard landing

2 Cash is king; beware of unwarranted optimism

3 Stay on top of aging receivables

4 Revisit capital expenditure plans

5 Lose the losers: if established business segments are not profitable during this phase, eliminate them

6 Use competitive pricing to manage your backlog through the coming slowdown

7 Avoid committing yourself to long-term expenses at the top of the price cycle, but lock in revenue

8 Go entrepreneurial and/or counter-cyclical

9 Evaluate your vendors for financial strength; if needed, look for additional vendors as a safety net

10 If the cycle looks recessionary, cross-train key people to prepare for workforce attrition/reduction

Management Objectives™

1 Implement aggressive cost-cutting measures

2 Offer alternative products with a lower cost basis

3 Perform due diligence on acquisitions while valuations are falling

4 Reduce advertising as consumers become more price conscious

5 Enter or renegotiate long-term leases

6 Negotiate labor contracts

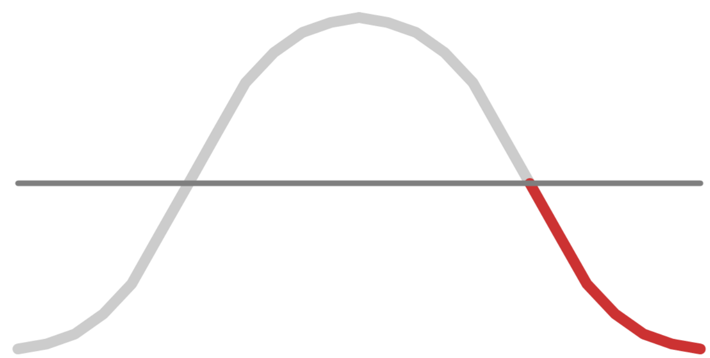
7 Consider capital equipment needs for the next cycle

8 Tighten credit policies

9 Develop programs for advertising, training, and marketing to implement in Phase A

10 Lead with optimism, remembering that Phase D is temporary

Phase



D