

# Electronics Industry Status & Outlook

## Measured Optimism

Dale Ford – Chief Analyst

June 27, 2024



Electronic Components Industry Association



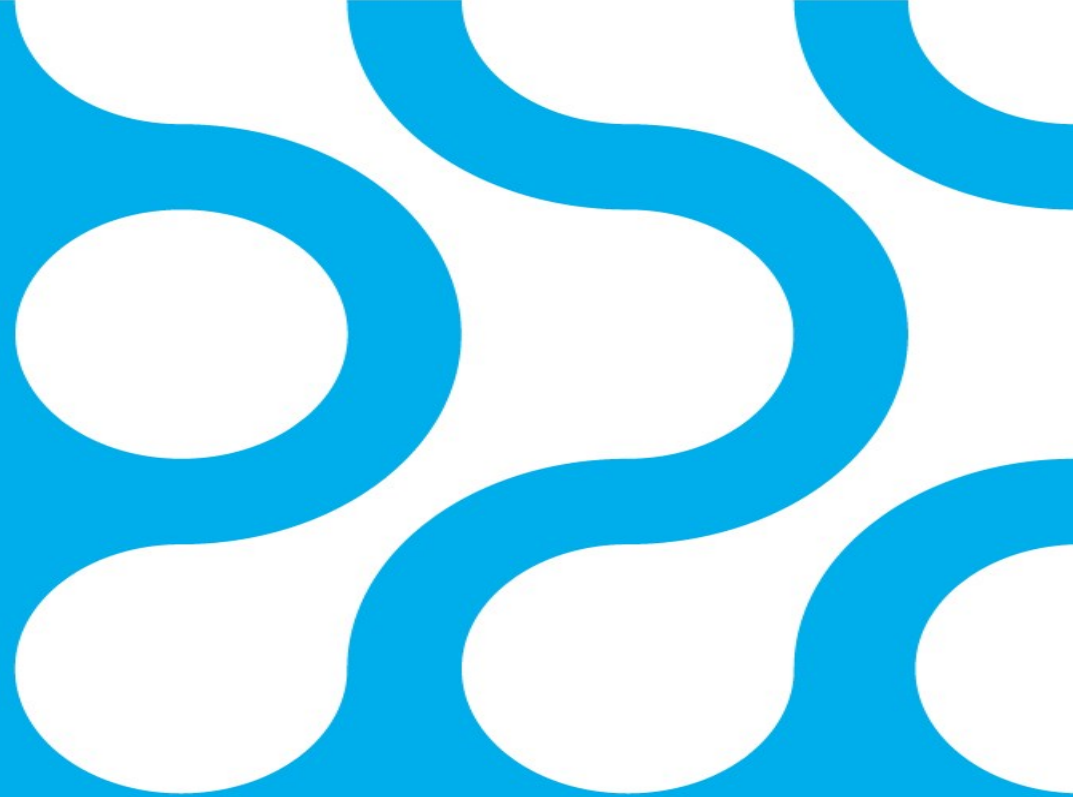
# Where Are We Going?

- Cycle Analysis 2024
- Looking Forward
- What About the Electronics & Components Supply Chain?
- Economic Impact
- The Vision Thing

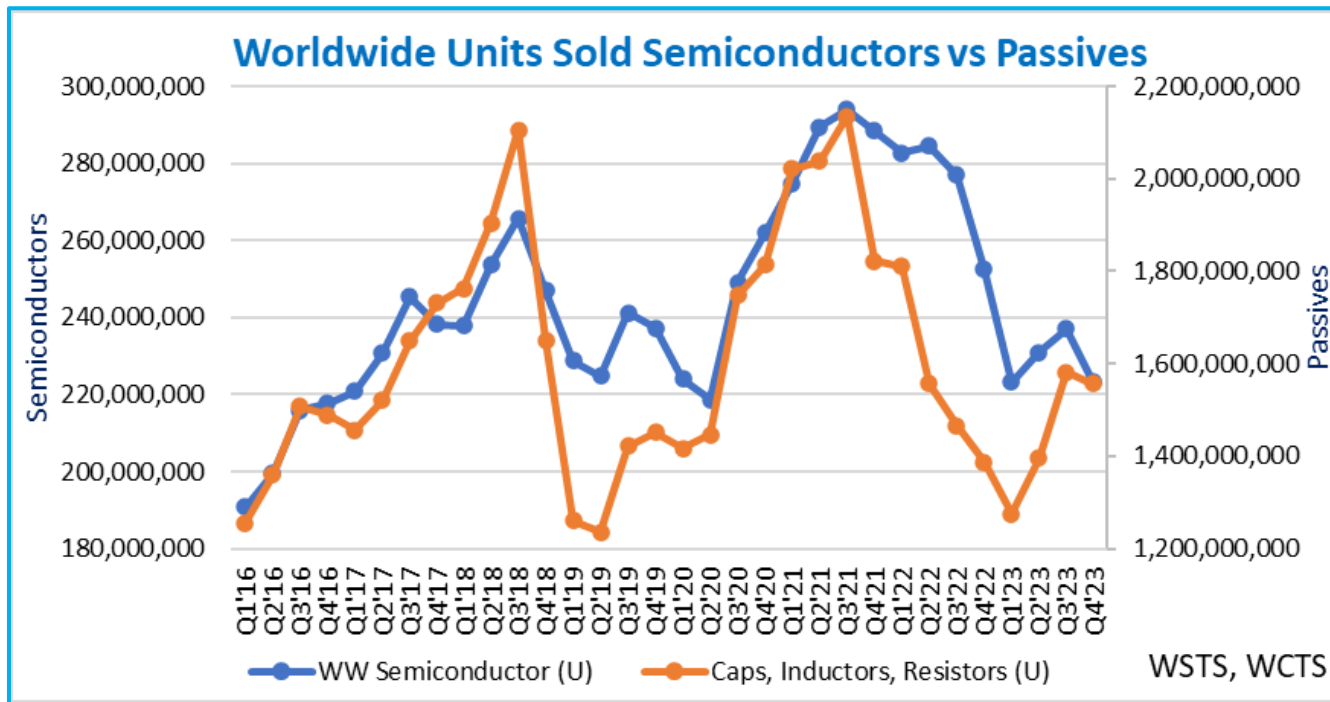
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# Cycle Analysis

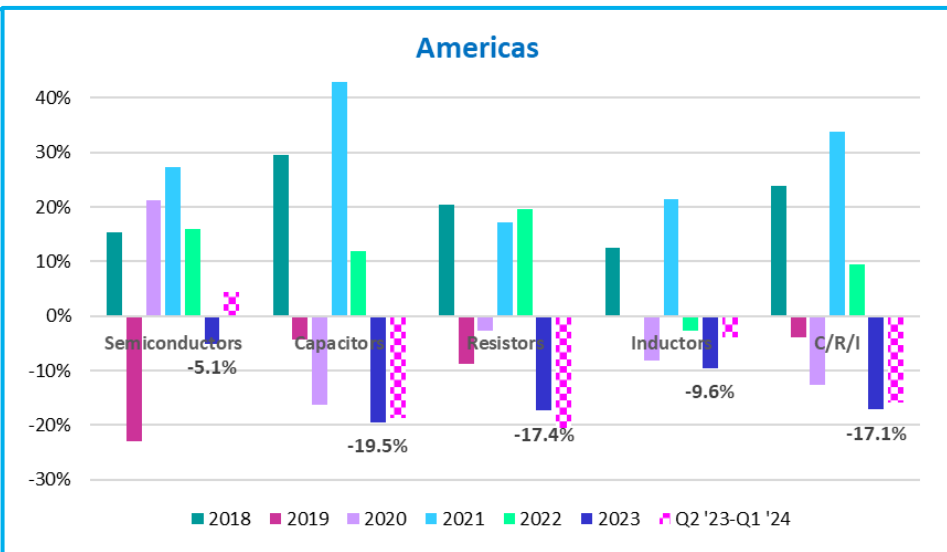
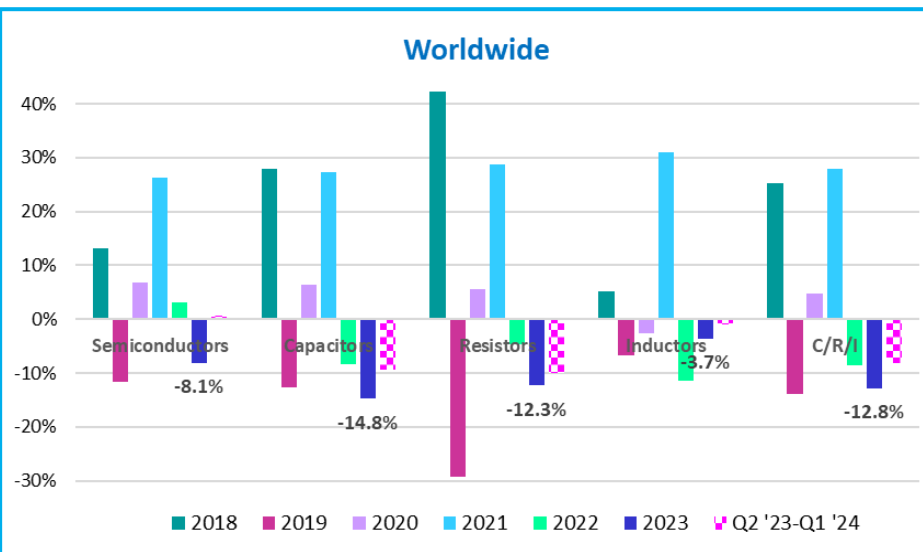
~ 2024 ~



# Semiconductors and Passive Comparisons



# Electronic Component Revenue Growth



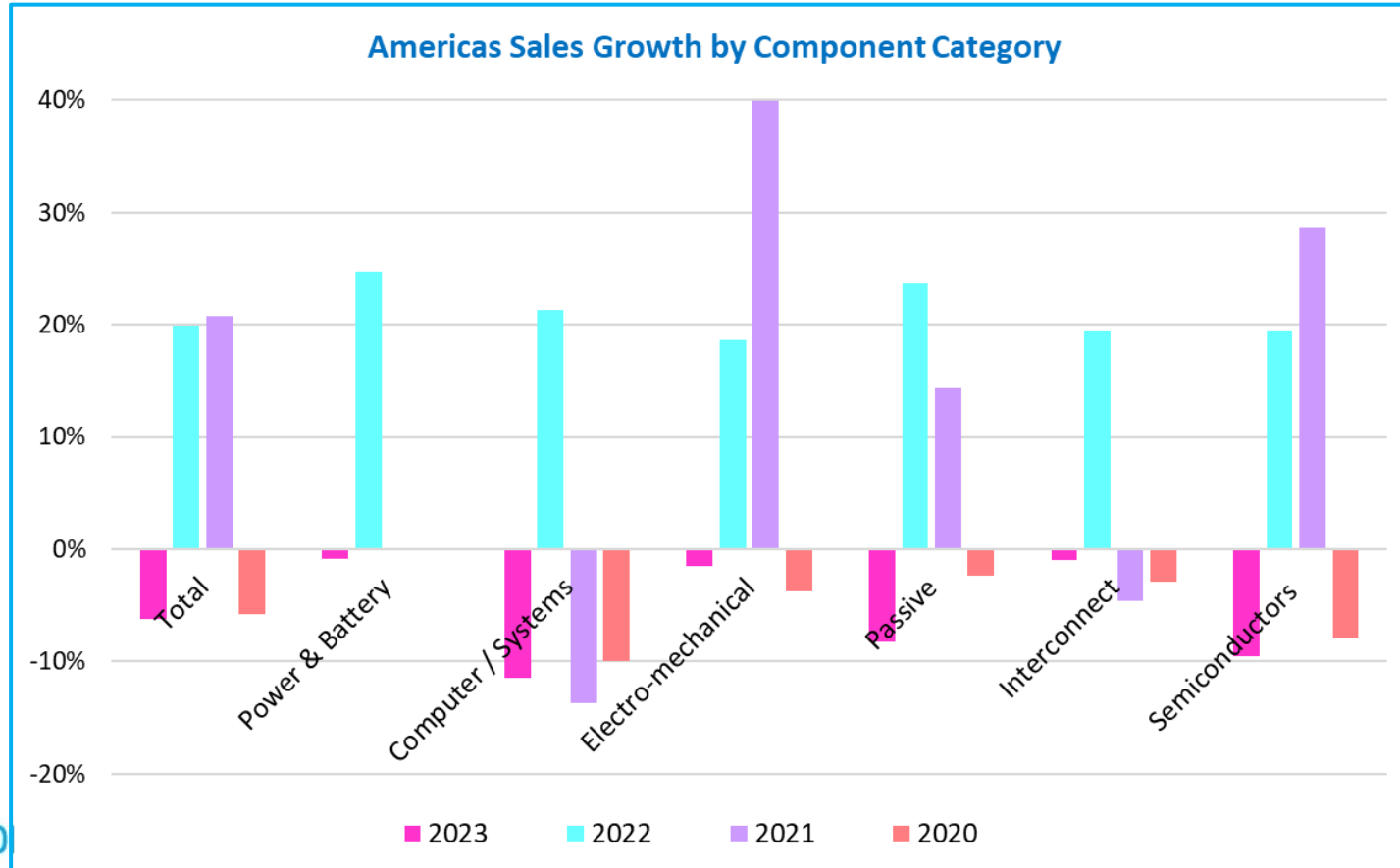
Source: World Semiconductor Trade Statistics (WSTS),  
World Passive Trade Statistics (WPTS)

# Electronic Component Qtr-over-Qtr Revenue Growth

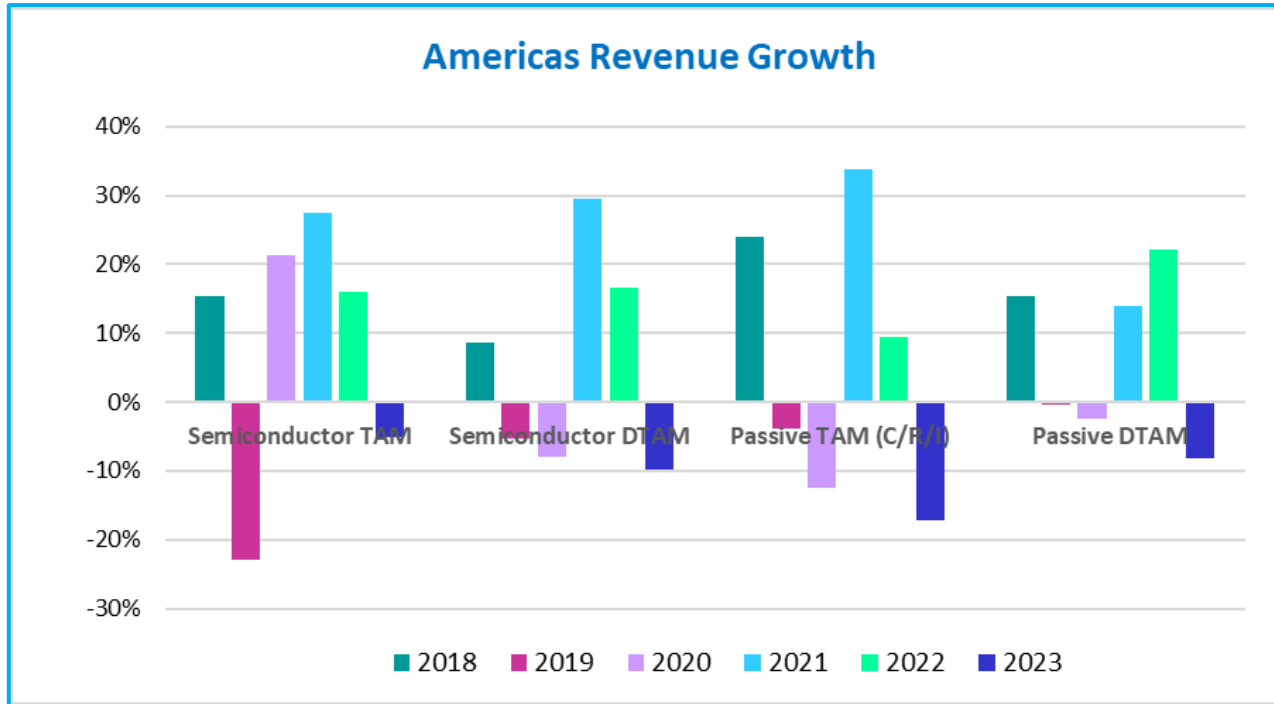


Source: World Semiconductor Trade Statistics (WSTS),  
World Passive Trade Statistics (WPTS)

# Americas Revenue for Top 50 Authorized Distributors



# Americas TAM / DTAM Growth Comparison

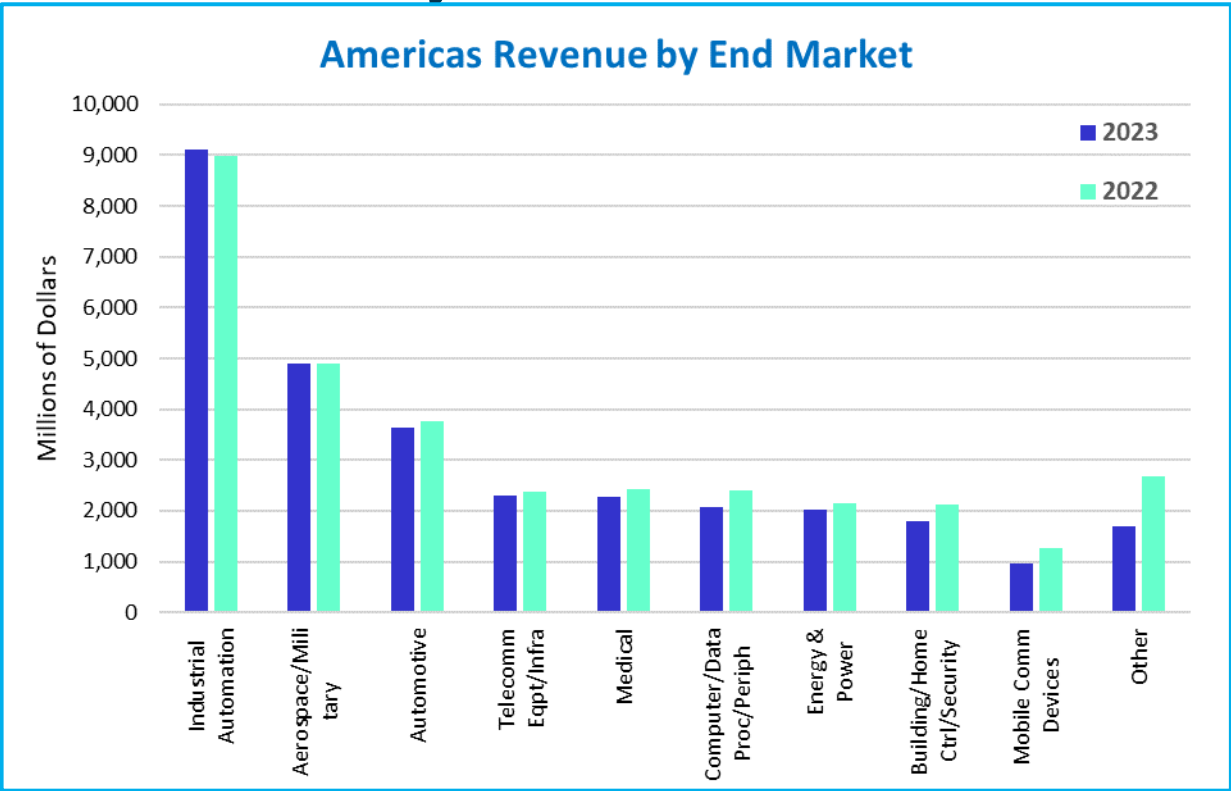


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Source: World Semiconductor Trade Statistics (WSTS),  
World Passive Trade Statistics (WPTS)

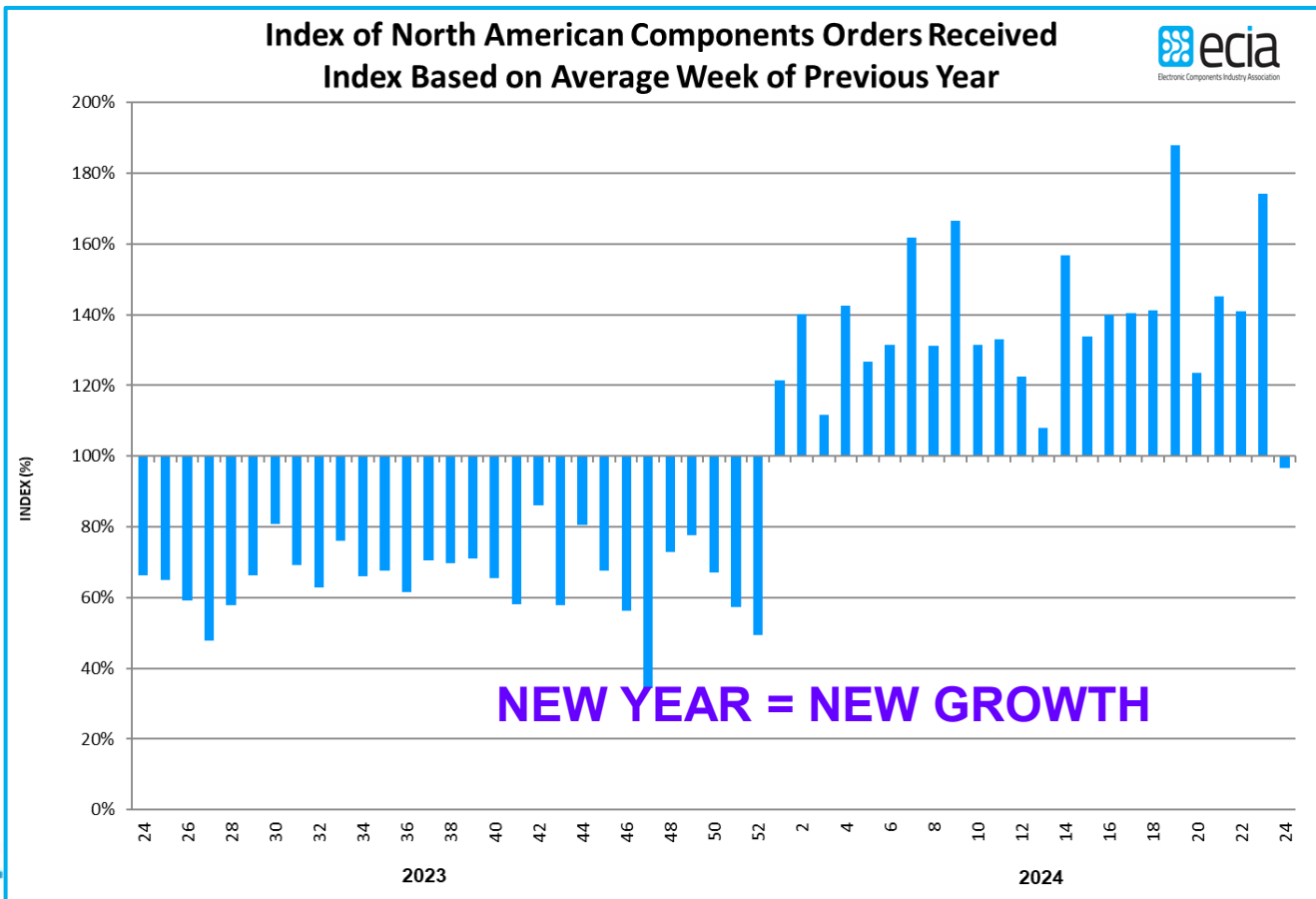


# Distribution TAM by End Market



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# IP&E – Interconnect, Passive, Electro-Mechanical Orders



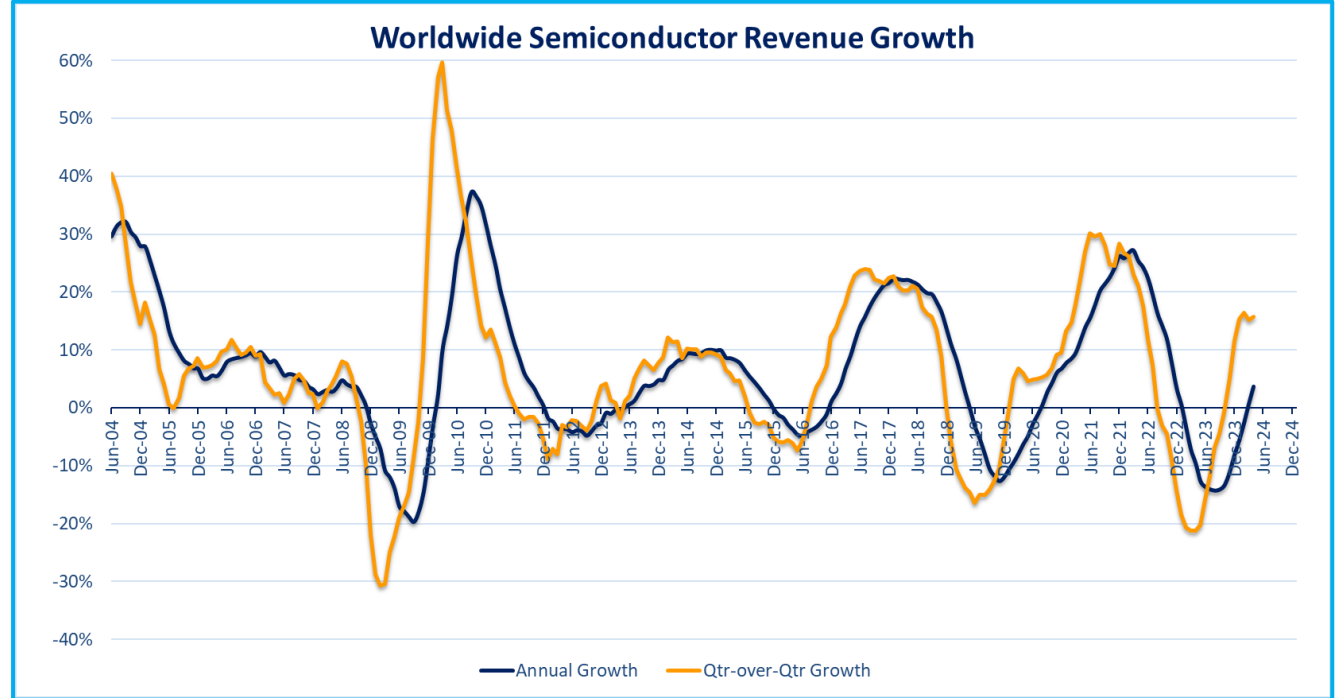
Connect.

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Electronic Components Industry Association

Source: ECIA

# Semiconductor Revenue Growth Cycle

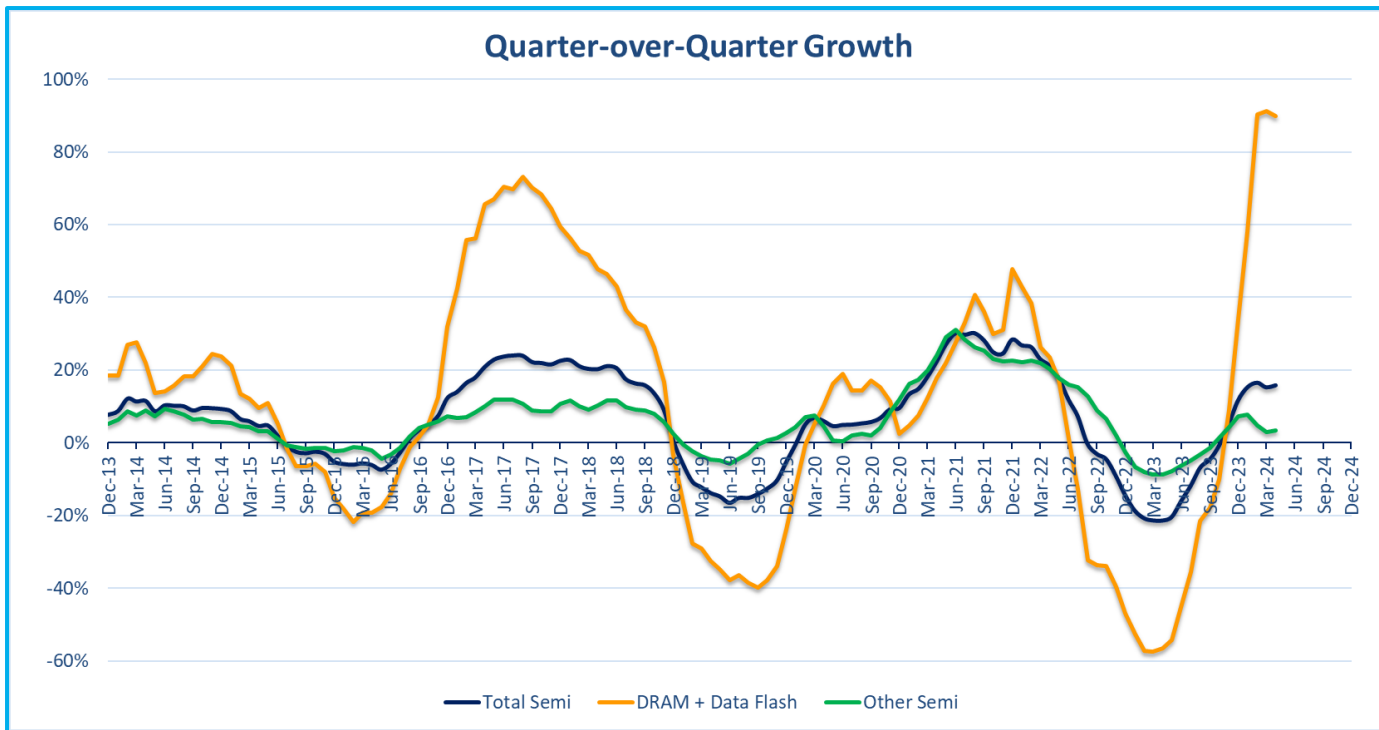
- Quarter-over-Quarter hits a “pause” starting in Feb??
- Annual revenue cycle reaches 3.7% in April
- How long can the positive growth last? Will improved growth resume?
- Demand drivers continue to shift from consumer markets
- Asia achieving recovery to boost global picture
- Question – How well is the supply chain balanced?



Source – WSTS

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# Semiconductor Growth Trends

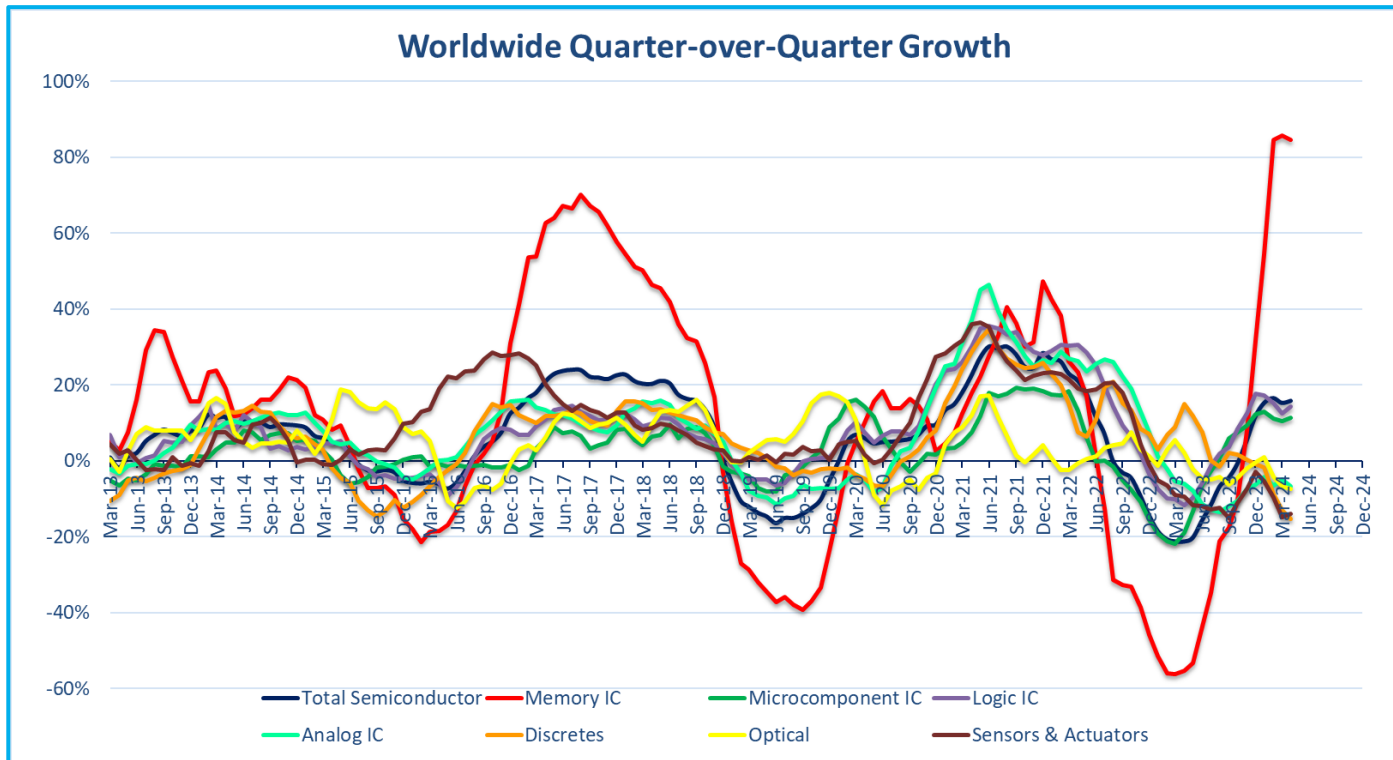


Source: WSTS

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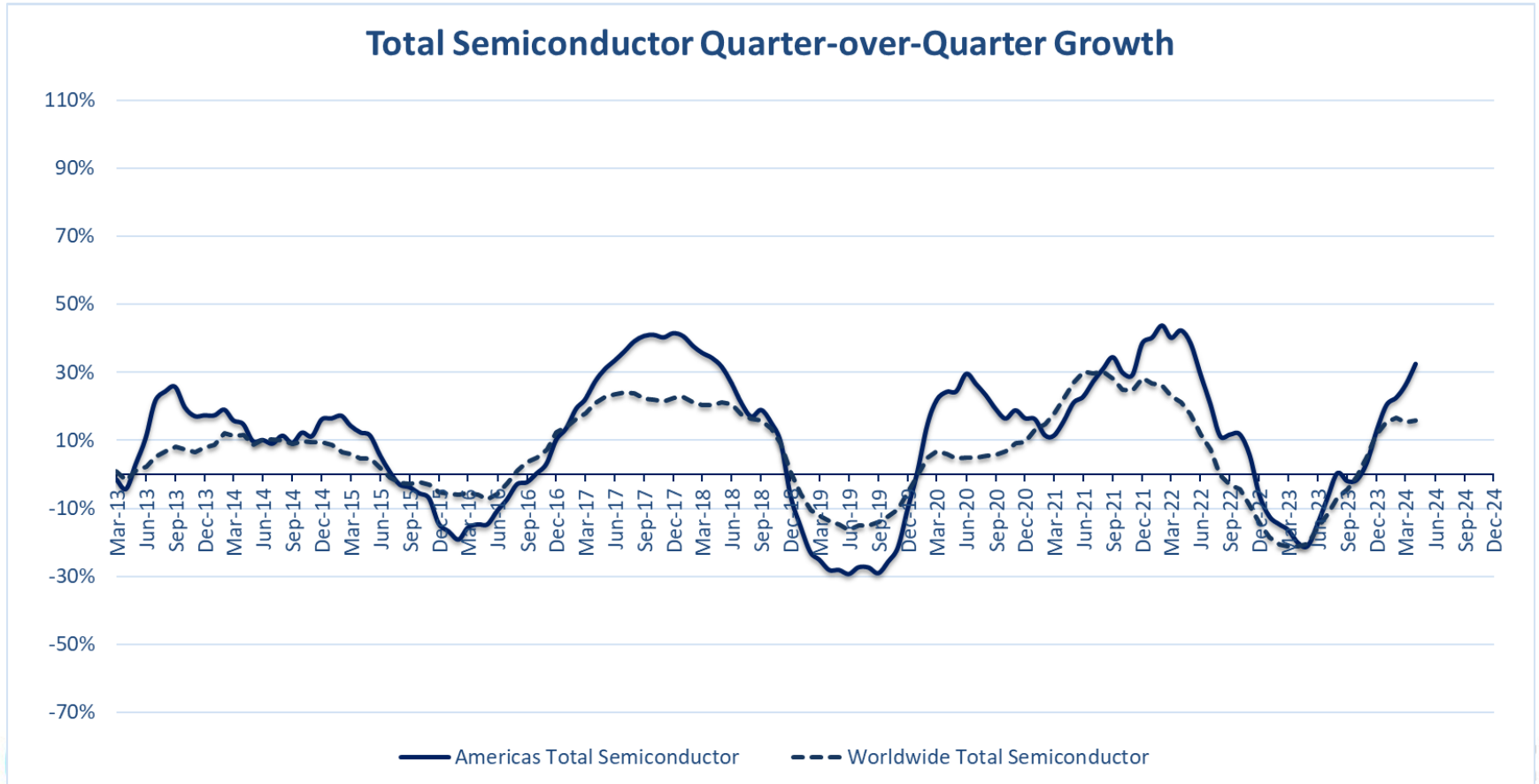
# The Tide is Not Lifting All Ships

- Memory IC Cycle hits extreme swing even for a traditionally volatile market
- Memory, MPU, and Application Specific Logic ICs showing strong growth
- Analog ICs, Optical, Sensors, and Discretes moving countercyclical in negative territory
- Americas growth profile mirrors and outperforms Worldwide trend
- Pricing dynamic key to cycle



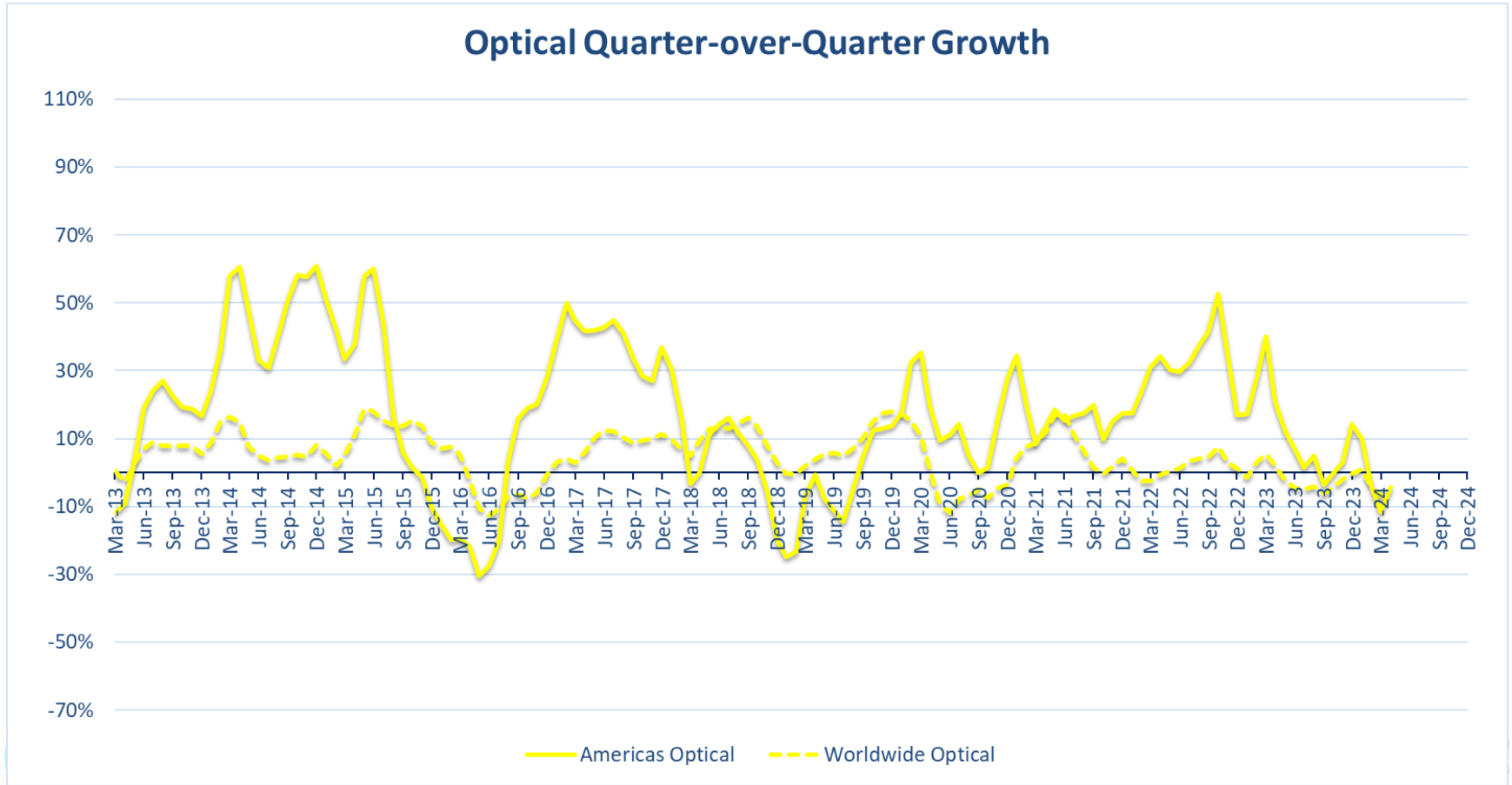
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# The Good



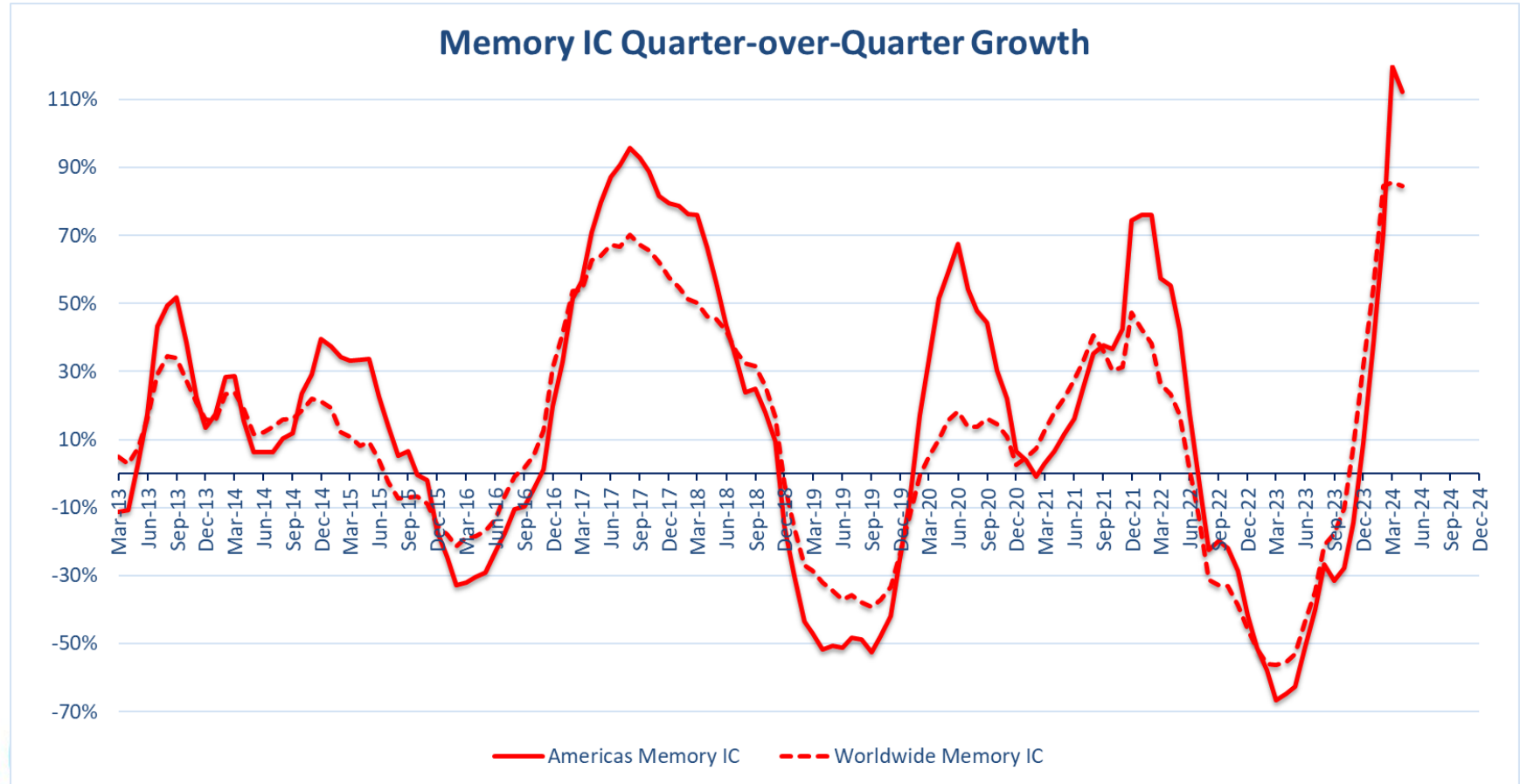
Source: WSTS

# The Bad



Source: WSTS

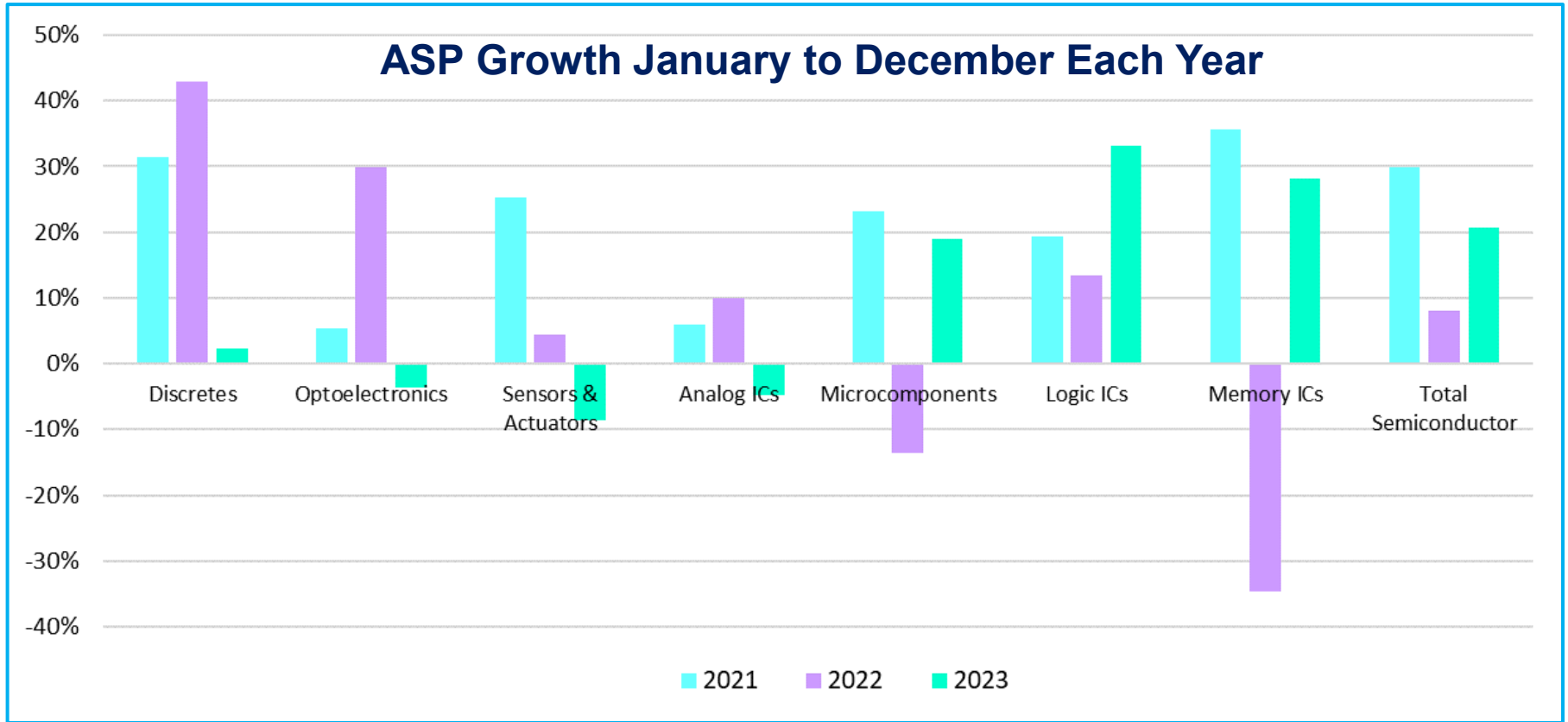
# The Amazing



Source: WSTS

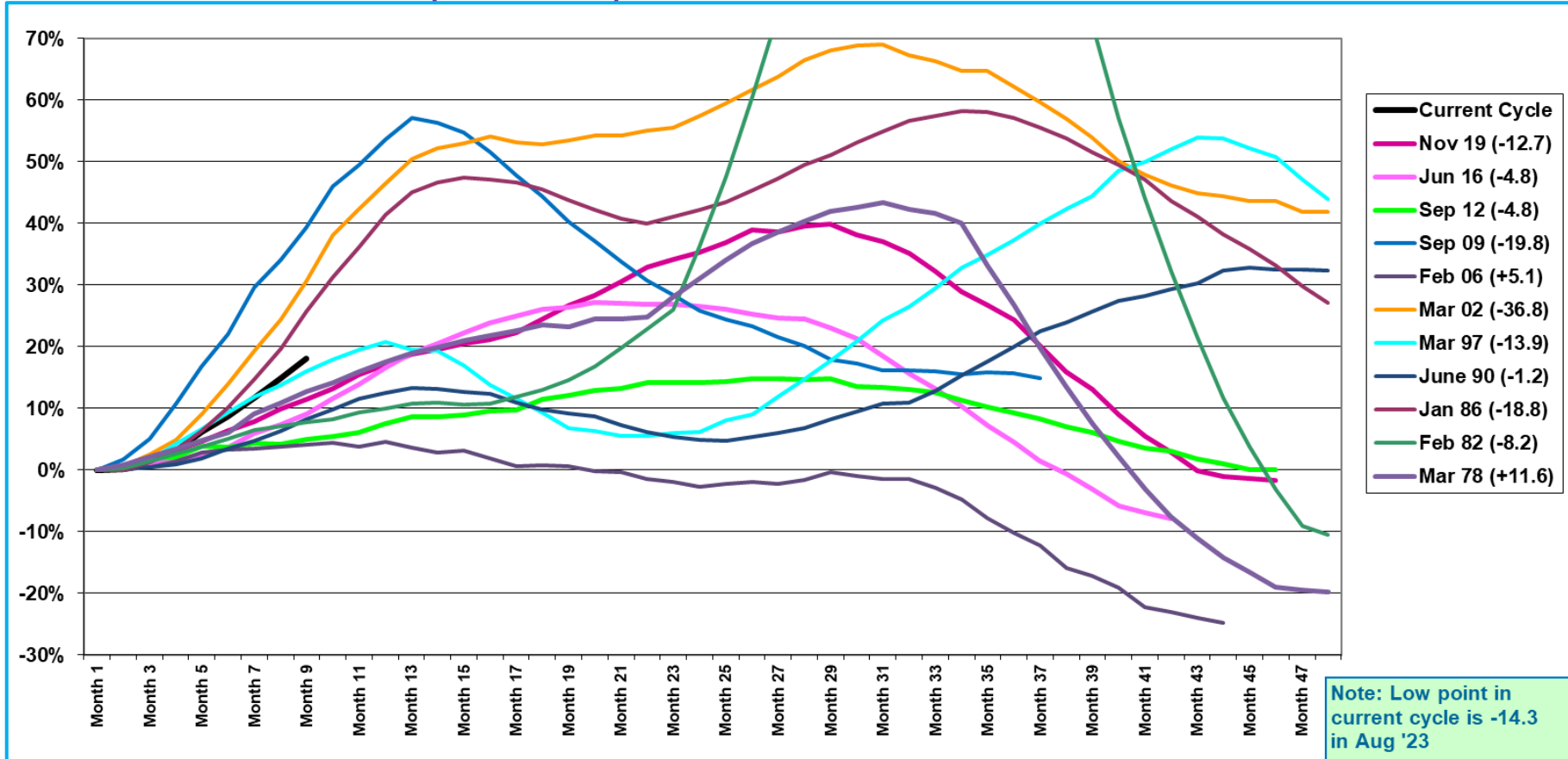


# An ASP Driven Semiconductor Cycle



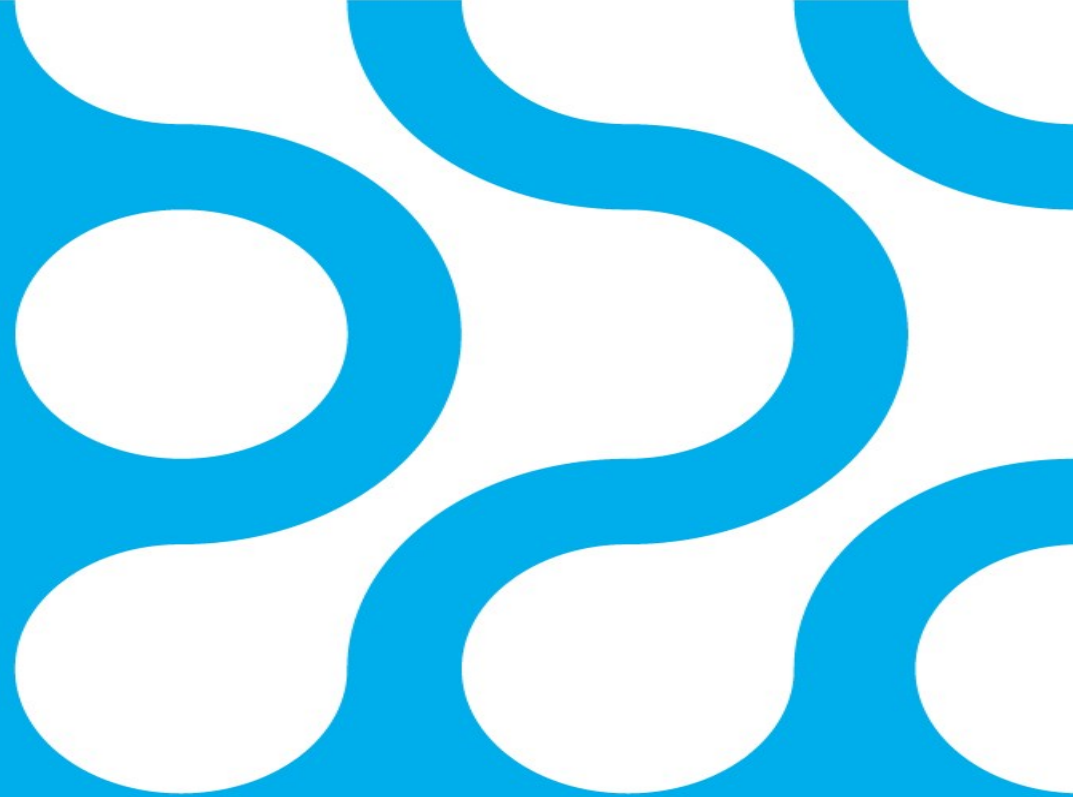
# New Cycle Began in August 2023

After nine months improves by 18% above the bottom

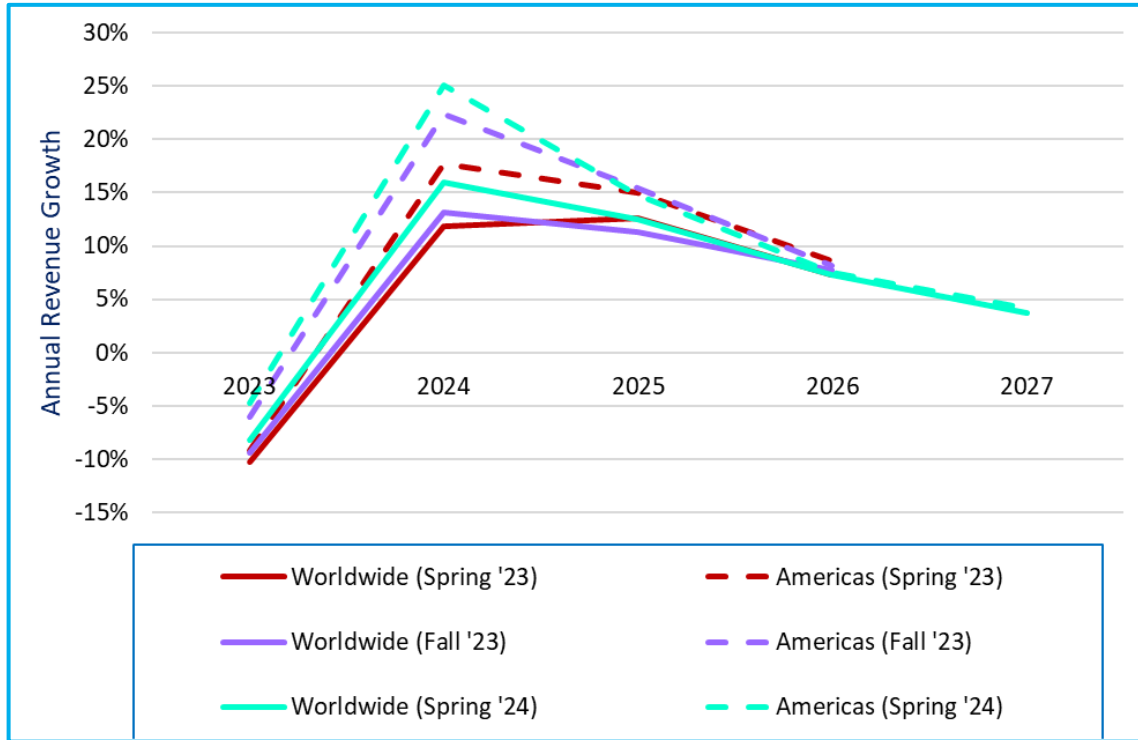


# Looking Forward

~ 2024 + ~



# WSTS Semiconductor Forecasts



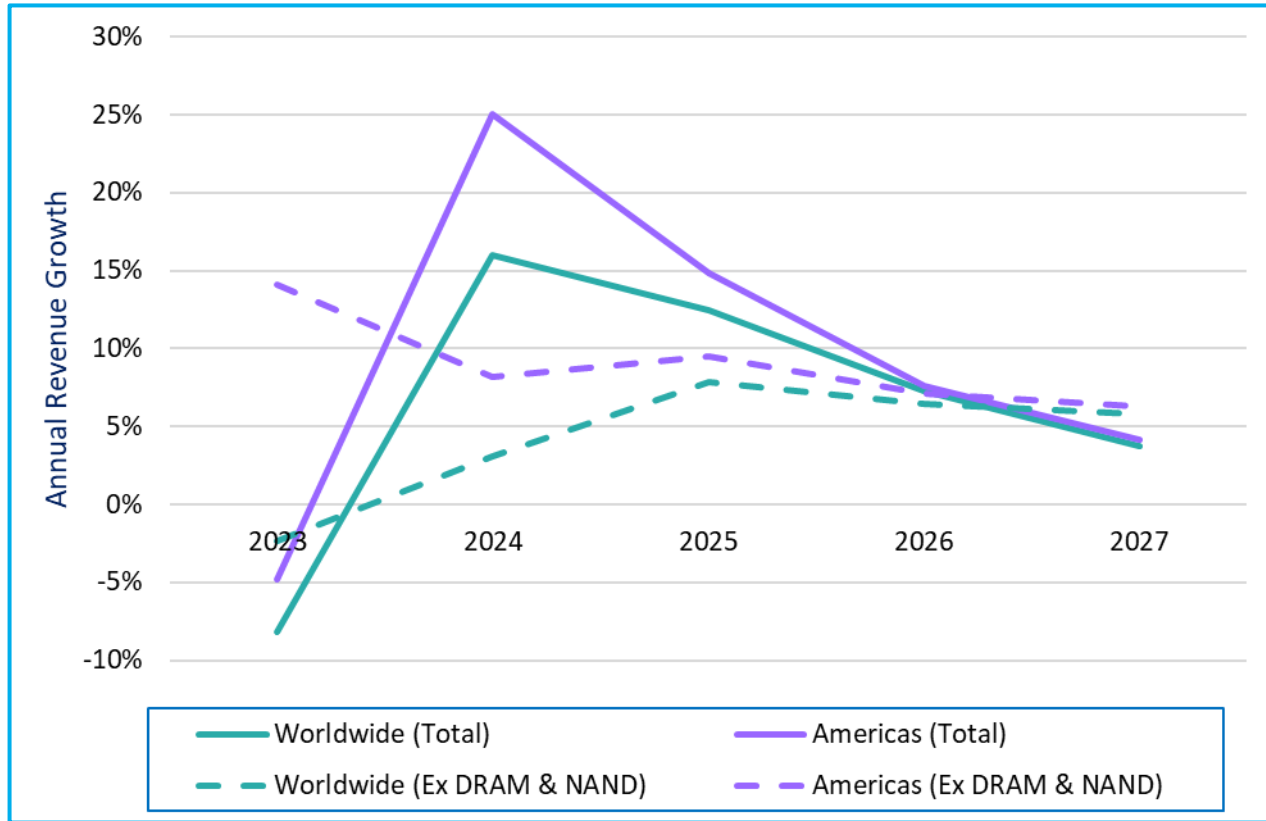
Source: WSTS

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## Observations:

- Spring WSTS presents increased optimism for 2024 and 2025
- World 2024 forecast = 16.0%; Americas 2024 forecast = 25.1%
- Double digit growth sustained into 2025
- Higher Americas outlook driven by larger market share of Memory ICs
- Non-Memory market growth expected but at much more subdued levels
- Long term growth trends back to single digits

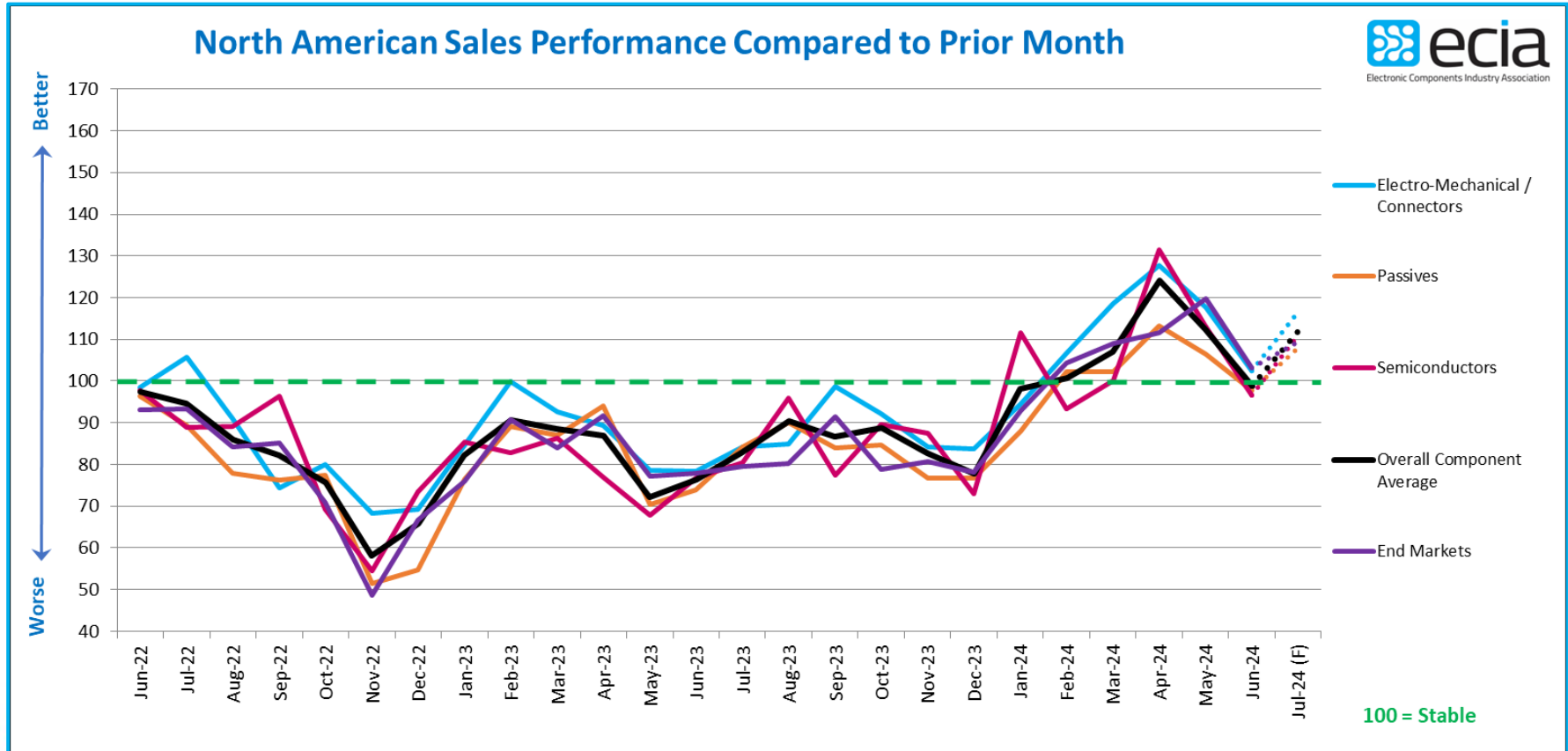
# WSTS Semiconductor Forecasts



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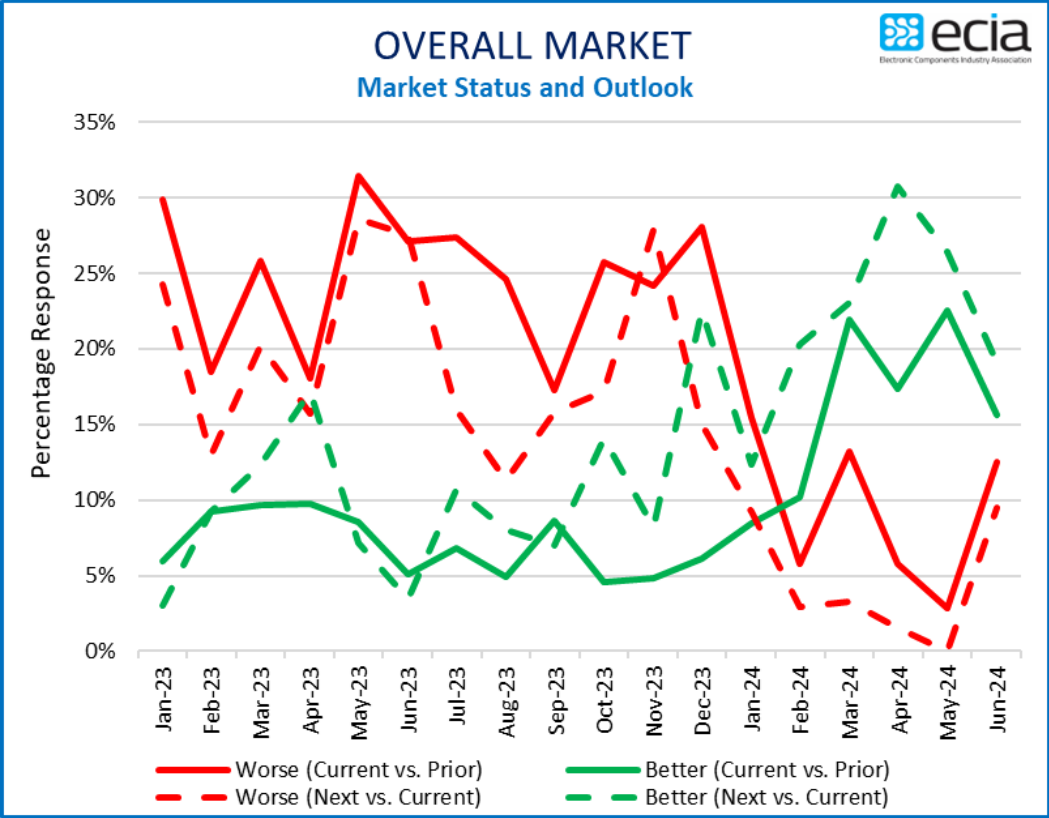
Source: WSTS

# North America Sentiment Survey Trends



Source: ECIA Electronic Component Sales Trends Survey

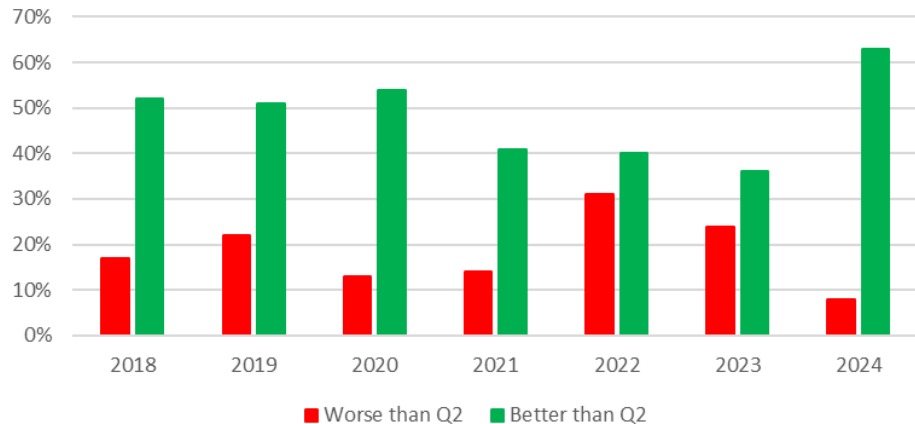
# North America Sales Sentiment Survey Trends



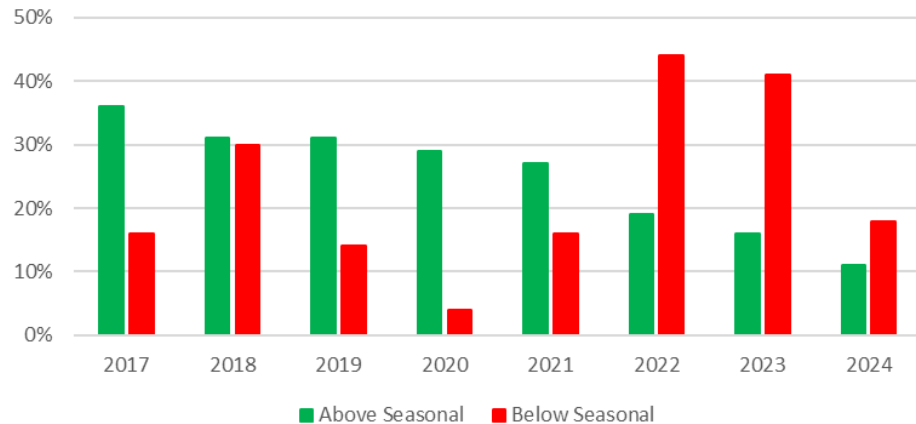
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# Asia/Pacific Growth Expectations

## C3Q Growth Expectations vs. C2Q



## C3Q Seasonality Expectations

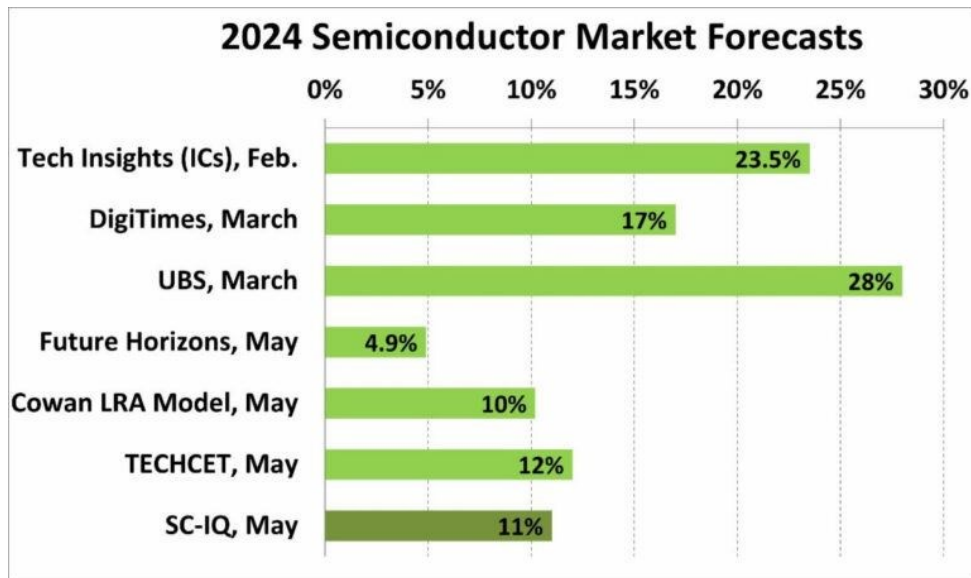
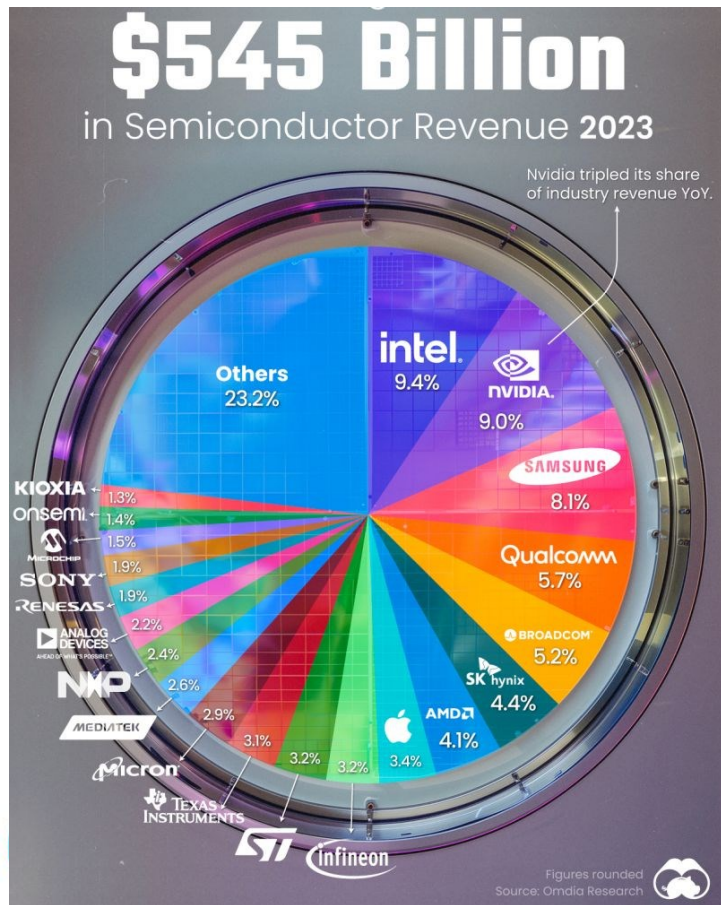


Source: TPC Survey

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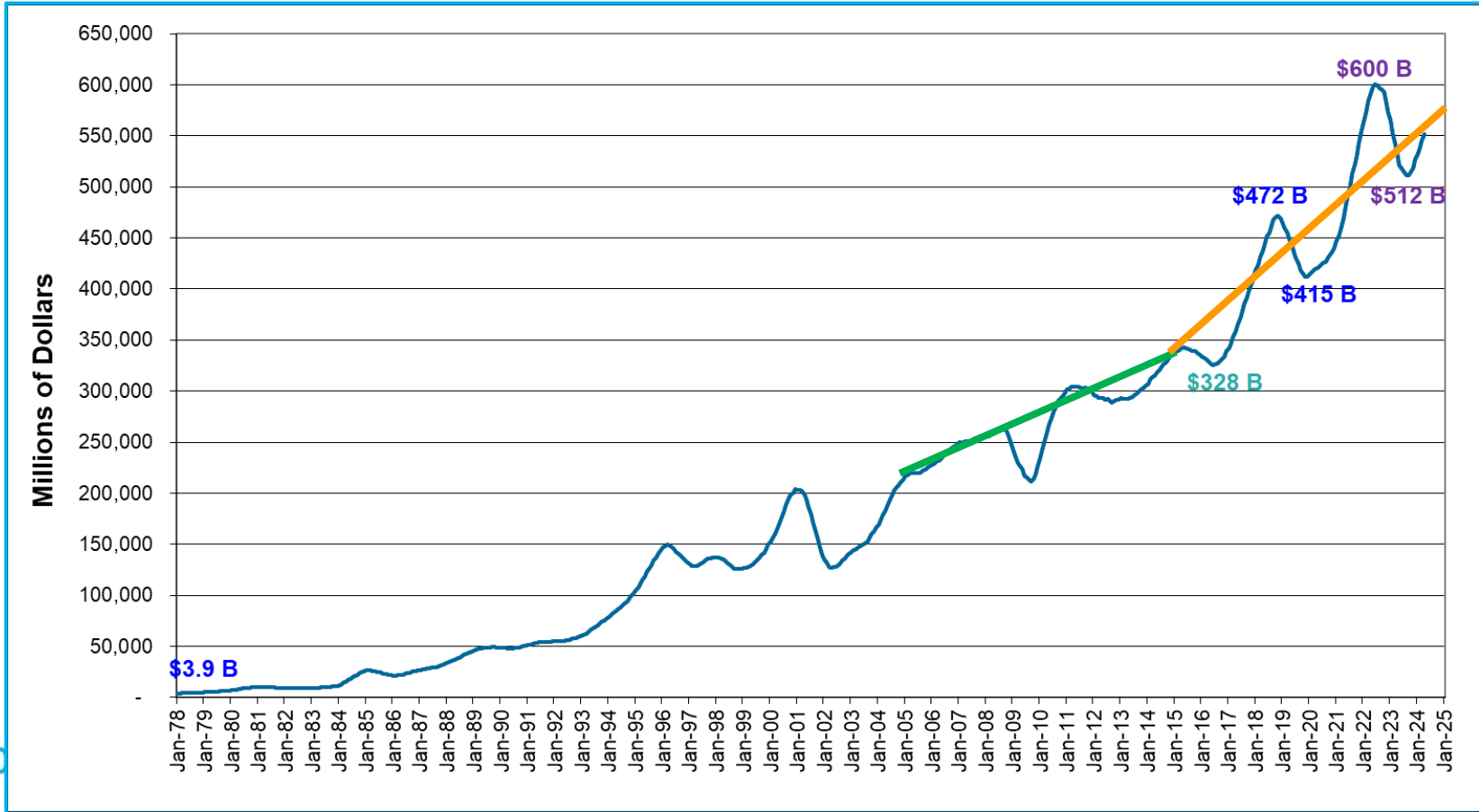


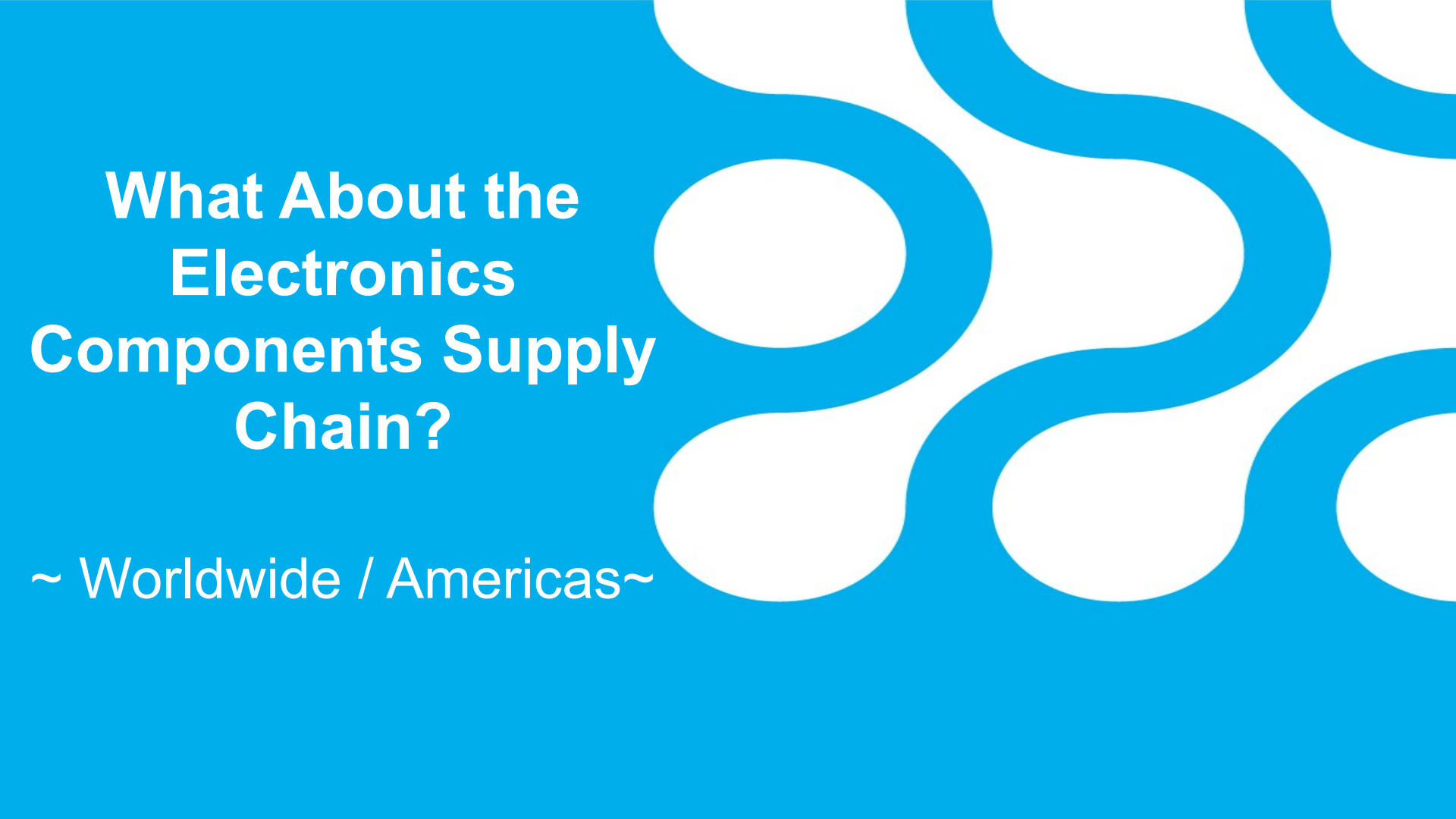
# Semiconductor Rankings and Forecasts



Source: Semiconductor Intelligence

# Long Term Trend = \$1 Trillion by 2034

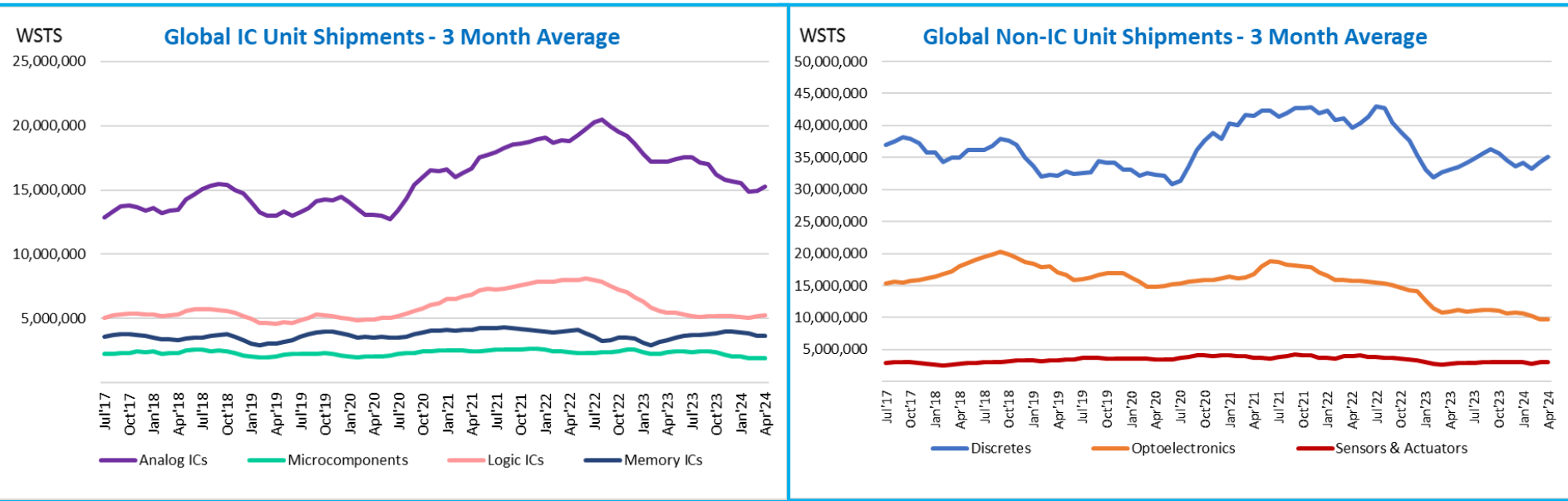




# What About the Electronics Components Supply Chain?

~ Worldwide / Americas~

# Worldwide Semiconductor Unit Shipments



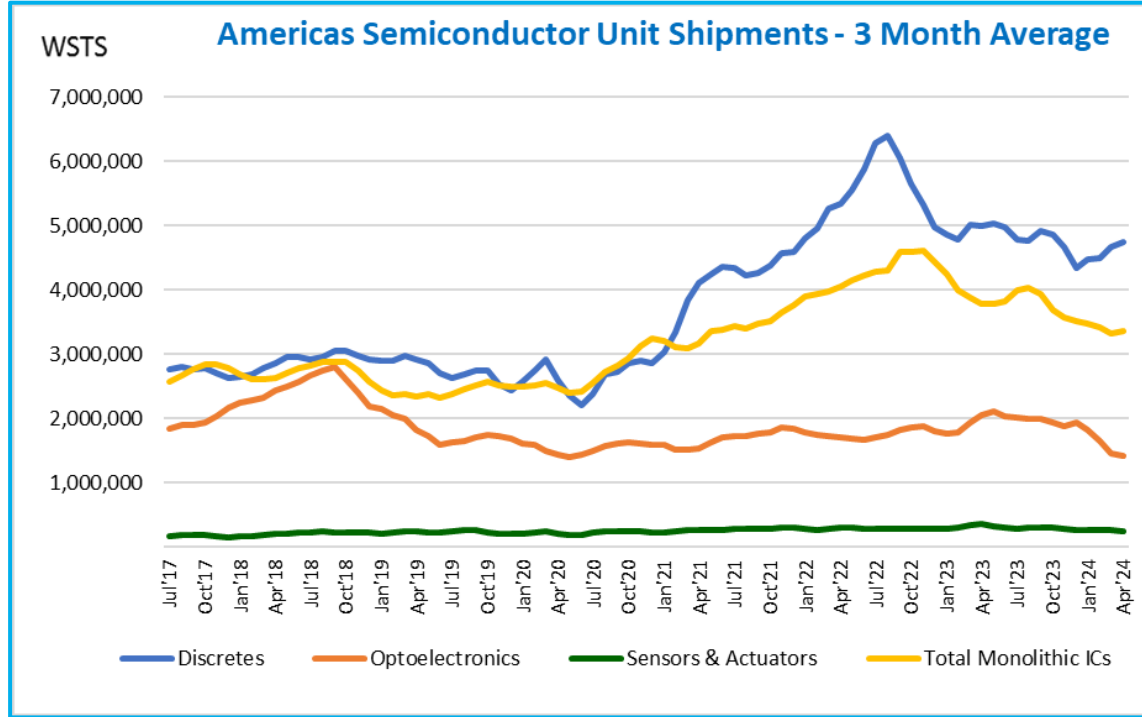
Source: WSTS

	Increase From:	Previous Peak	Recovery Start
• Discretes		-8.0%	13.8%
• Analog ICs		-1.2%	20.0%
• Logic ICs		-7.6%	8.2%

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# Americas Semiconductor Unit Shipments



Source: WSTS

**Increase From:**

- Discretes
- Monolithic ICs

Previous Peak

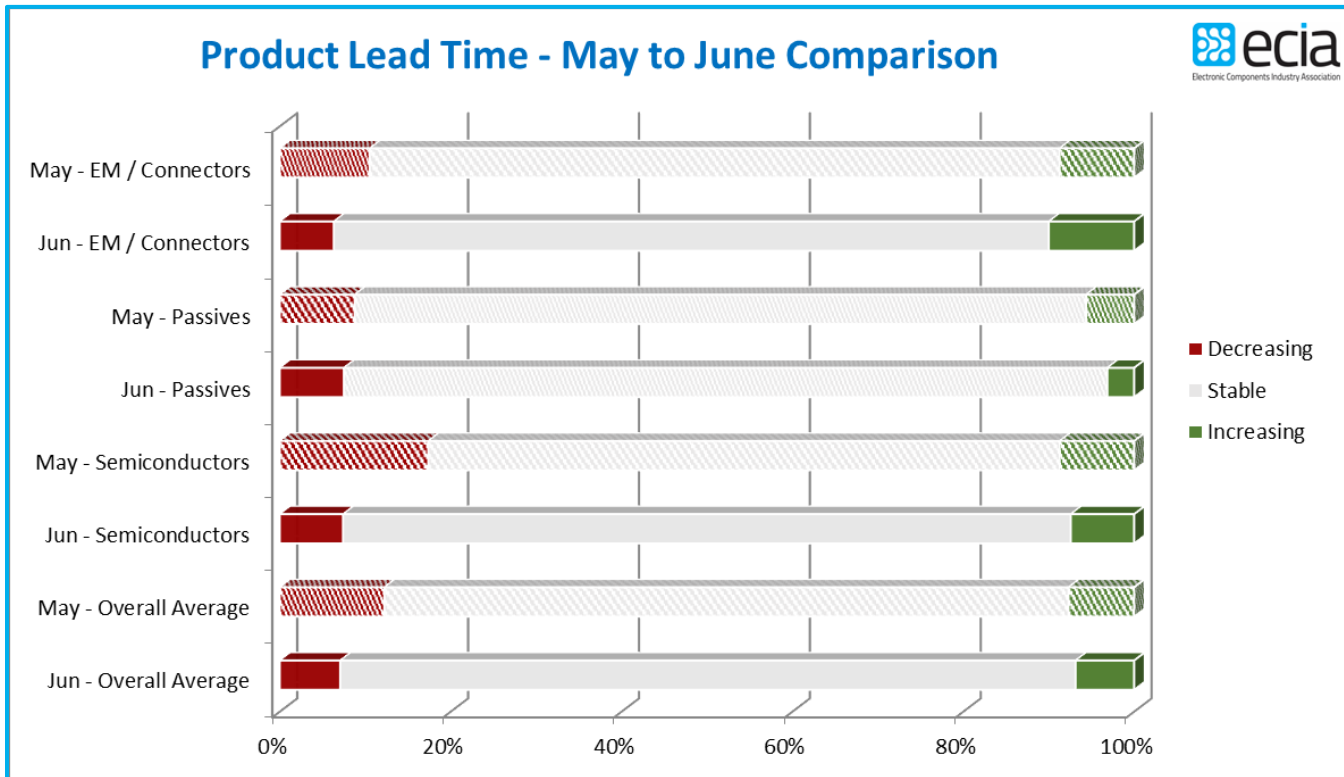
55.0%  
16.5%

Recovery Start

115.3%  
40.0%

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# Lead Time Status - Stable

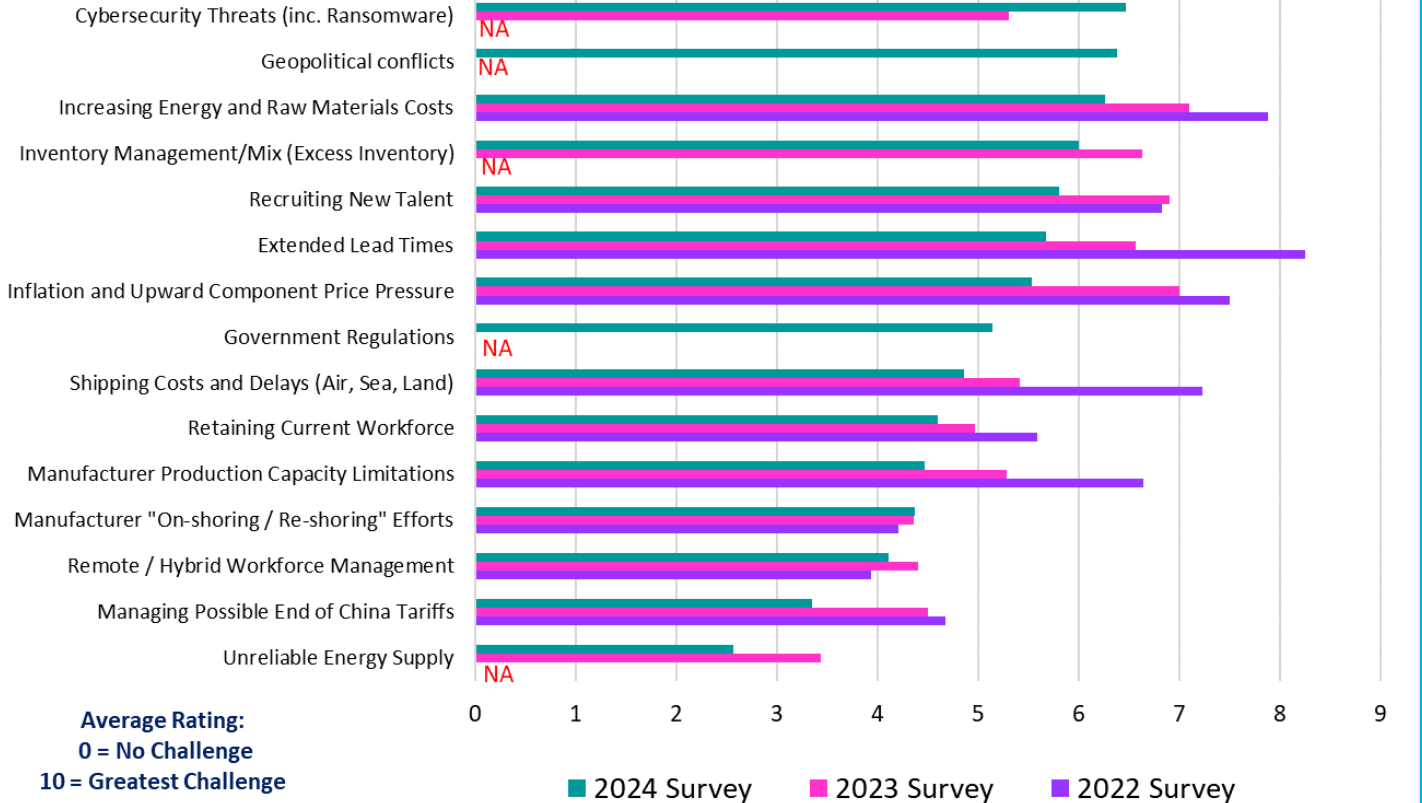


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# Top Challenges

## Electronic Component Supply Chain Challenge Expectation



# Can the Grid Support Future Energy Demands?

- Microsoft has publicly committed to pursuing nuclear energy from an innovator in the fusion space
- In May, Microsoft announced it signed a power purchase agreement with Helion, a nuclear fusion startup, to buy electricity from it in 2028
- Microsoft is seeking a nuclear technology expert to lead the company's technical assessment for integrating small modular nuclear reactors and microreactors "to power the datacenters that the Microsoft Cloud and AI reside on"
- Bill Gates is the chairman of the board of TerraPower, a nuclear innovation company in the process of developing and scaling small modular reactor designs



# SOLAR DATA *cheat sheet*

People are currently employed  
by the solar industry<sup>1</sup>

**263,883**

**200.1 GW**

Amount of solar currently  
installed in the U.S.

Value of the U.S. solar  
market in 2023

**\$60.1 billion**

Today, over **6%** of U.S.  
electricity comes from solar  
energy, almost **6** times its  
share a decade ago

To help address climate change, the solar  
industry set a goal to reach...

**30%** electricity generation by **2030**

Number of solar  
businesses in the U.S.<sup>3</sup>

**10,000+**

**5,028,932**

Number of solar energy  
systems installed in the U.S.

Solar PV price decline  
over the past 10 years

**43%**

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### Top corporate solar users through June 2022

1. Meta - 3,588.1 MW
2. Amazon - 1,114.5 MW
3. Apple - 987.3 MW
4. Walmart - 688.9 MW
5. Microsoft - 550.6 MW
6. Target - 515.1 MW
7. Cargill - 342.0 MW
8. Kaiser Permanente - 302.5 MW
9. AB Inbev - 300.7 MW
10. Evraz North America - 300.0 MW

There is enough solar energy installed in the U.S. to power

**36.1 million households<sup>4</sup>**

In 2023, a new solar project was installed every

 **39 seconds**



### Carbon emissions reduced:

**222 million**

metric tons annually, equivalent to:



**53 million** vehicles off the road



**25 billion** gallons of gas not used




**3.7 billion** trees planted



**Shuttering 57** coal-fired plants

In 2023, solar became the first renewable technology in **80 years** to make up the majority of additions to the U.S. grid, accounting for

**55%** of all new generating capacity

 **25%** average annual growth of the solar market over the past 10 years

### State ranking by cumulative solar capacity

1. California - 48,482 MW
2. Texas - 32,142 MW
3. Florida - 16,640 MW
4. North Carolina - 9,574 MW
5. Arizona - 8,487 MW
6. Nevada - 7,325 MW
7. Georgia - 5,936 MW
8. New York - 5,834 MW
9. Virginia - 5,418 MW
10. New Jersey - 5,362 MW

 **15%**

of U.S. homes will have a solar PV system by 2030

**450 GW**

of new solar capacity will be installed over the next 10 years

©2024 Solar Energy Industries Association. Cheat Sheet Updated 06/6/2024 from Q2 2024 data. All data from SEIA/Wood Mackenzie Power & Renewables U.S. Solar Market Insight report except as otherwise noted - SEIA.org/smi 1. solarjobscensus.org 2. SEIA.org/solarmeanbiz 3. SEIA.org/nsd 4. SEIA.org/whats-megawatt

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# NAM, Allies File Suit Against EPA Over Air Standard

- Push back on the EPA's National Ambient Air Quality Standards rule, PM2.5 (i.e., particles that measure two and a half micrometers or less in diameter), which last month it lowered from 12 micrograms per cubic meter of air to 9, a 25% reduction
- According to the EPA, the U.S. reduced six common pollutants covered by National Ambient Air Quality Standards, including PM2.5, by 78% between 1970 and 2020. In fact, PM2.5 levels alone have dropped a full 44% since 2000.



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# NAM, Allies File Suit Against EPA Over Air Standard

- An additional regulatory burden on businesses will drain resources from innovative manufacturers, posing additional hurdles to the investment in research and development that fuels progress in energy efficiency and climate action.
- Making permitting harder could also jeopardize new clean energy projects that America needs to address climate change.
- The standards will hinder onshoring, resulting in continued manufacturing abroad—which is less clean than manufacturing in the U.S. The EPA’s proposal undercuts U.S. competitiveness and will not further the goal of global emissions reduction.
- New regulations could damage an already-slowing economy, increasing costs and constraining job growth at a time when Americans are grappling with record inflation.

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# Forbes Sounds Warning – California Train Regulations

Forbes highlights a controversial plan by California's regulators to phase out diesel-powered locomotives. By 2029, older diesel engines would be banned, and by 2035, all long-distance freight trains would need to be zero-emission. The issue? The required battery technology is far from being viable. This move, according to Forbes, reflects a common trend among California's leaders: prioritizing ideological goals over practical considerations.

Given California's economic significance, this ban could ripple across the entire country. Forbes warns that about two-thirds of the nation's locomotives might be banned from entering California, forcing other states to adopt similar regulations or risk economic isolation. This coercive strategy, according to Forbes, is dangerous and could disrupt the national transportation network.

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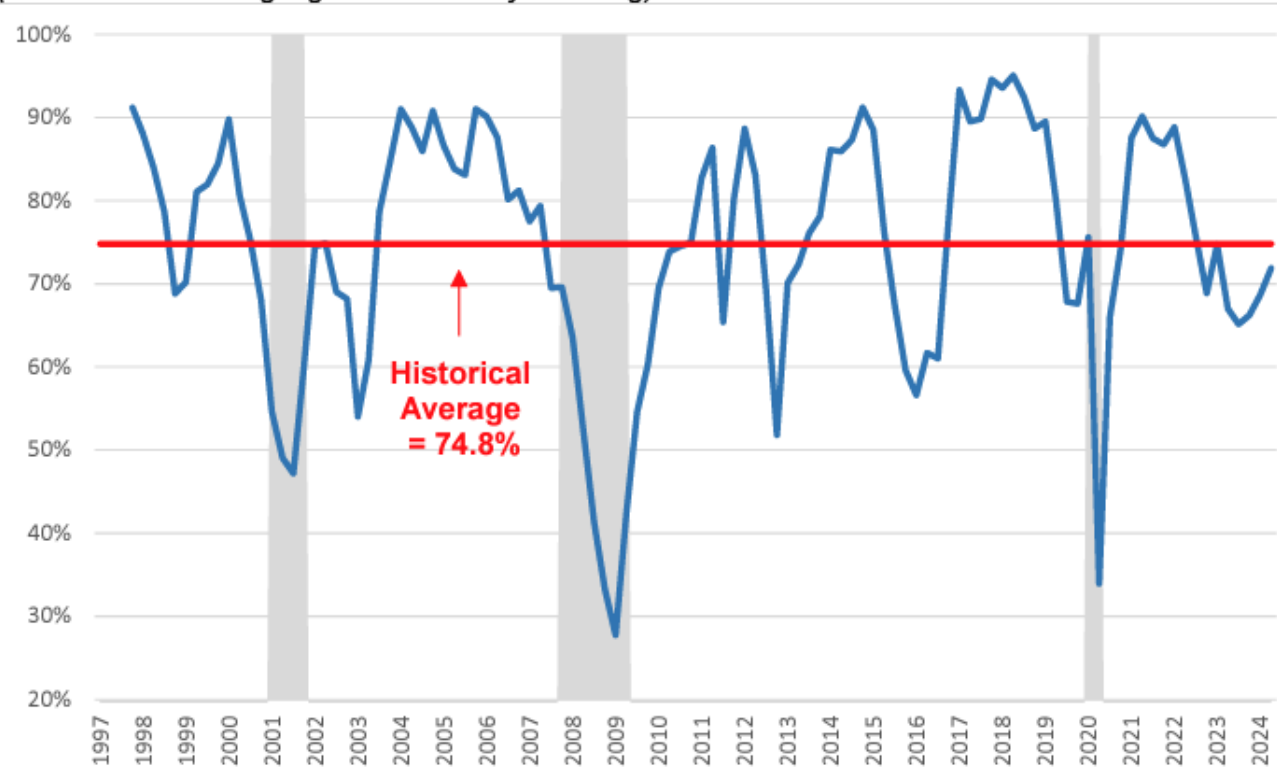


# Economic Impact



# NAM Q2 2024 Manufacturers' Survey

**Figure 1: Manufacturing Business Outlook by Quarter, Q4 1997 – Q2 2024**  
(Recessions Are Highlighted with Gray Shading)



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Note: Percentage of respondents who characterized the current business outlook as somewhat or very positive. Recessions are designated by the National Bureau of Economic Research.

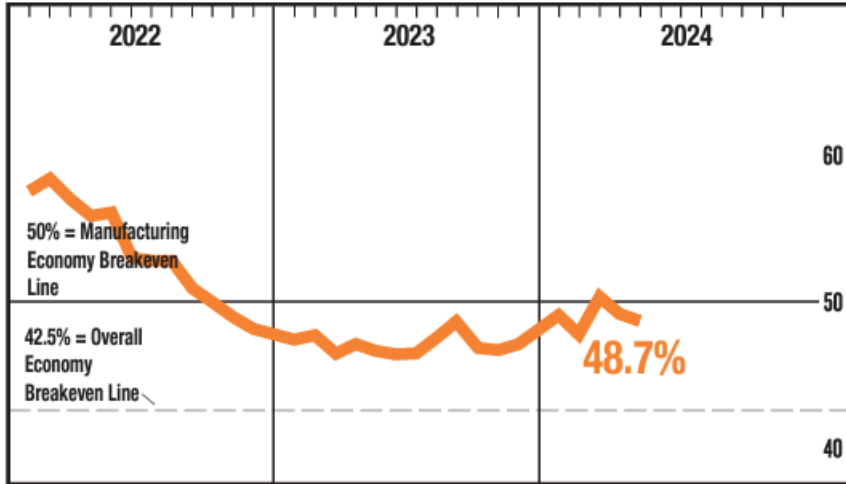
# NAM Q2 2024 Manufacturers' Outlook Survey Findings

- If Congress does not act to prevent tax increases, survey respondents say that increased taxes will limit capital investment opportunities (73.0%), decrease job creation (65.4%), increase difficulty competing globally (52.6%) and reduce R&D spending (51.7%).
- 71.9% of respondents felt either somewhat or very positive about their company's outlook, the seventh straight reading below the moving average (74.8%).
- More than 67% of manufacturers cited the inability to attract and retain employees as their top primary challenge, followed by rising health care costs (66.7%), an unfavorable business climate (59.6%) and a weaker domestic economy (56.8%).



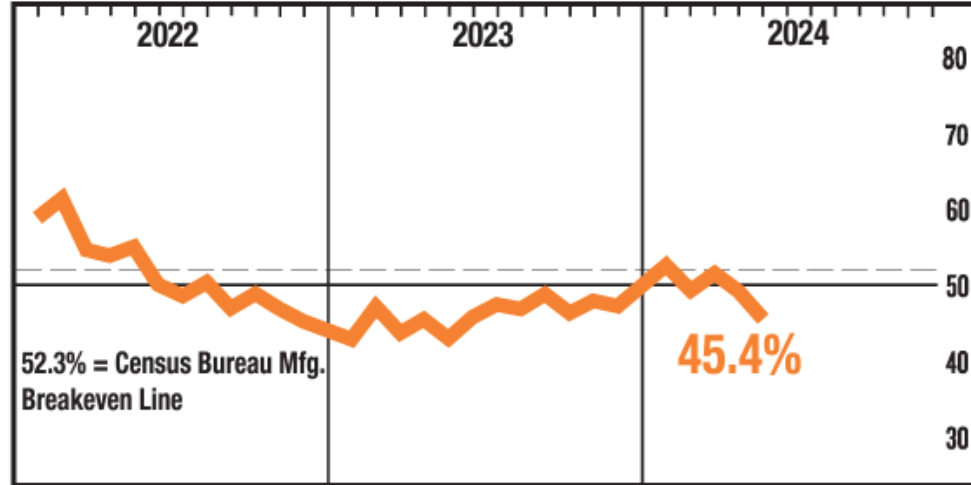
# PMI Index in Contraction Territory

## PMI Index



Source – ISM

## New Orders

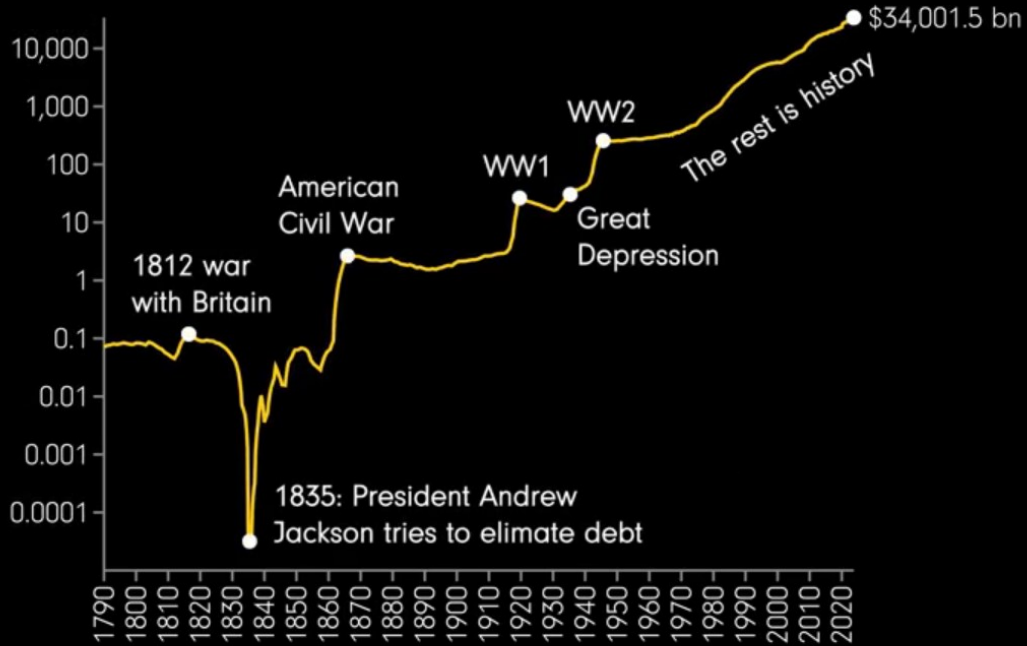


Source – ISM

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# US government debt

Total US government debt outstanding (US\$ bn), Log-scale Q4 2023



\$34,001,494,000,000

Connect. Infr



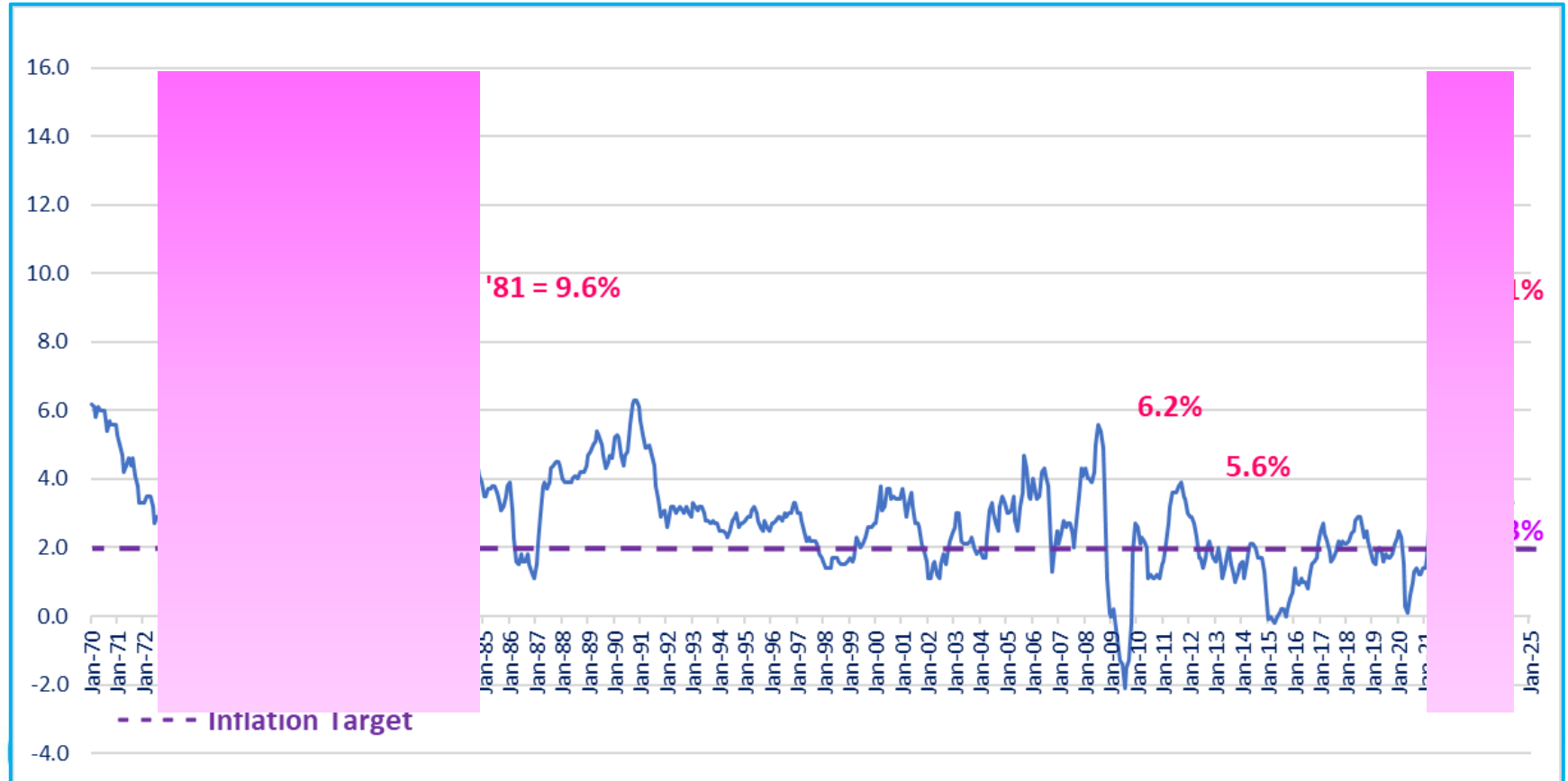
[www.linkedin.com/in/jameseagle/](https://www.linkedin.com/in/jameseagle/)

Source: US Treasury, Federal Reserve of St. Louis



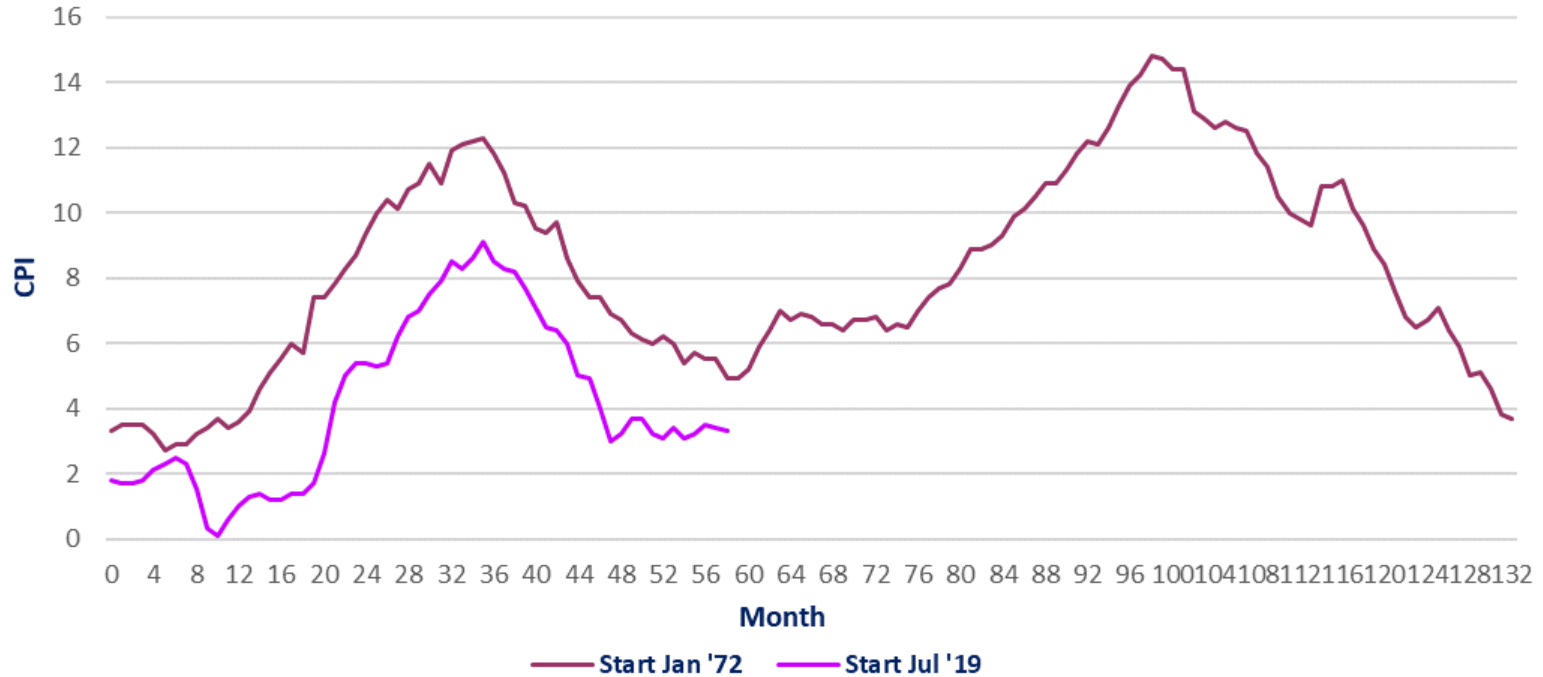
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# Inflation Falls from 40 Year High – Still Stubborn



Source – Bureau of Labor Statistics (BLS)

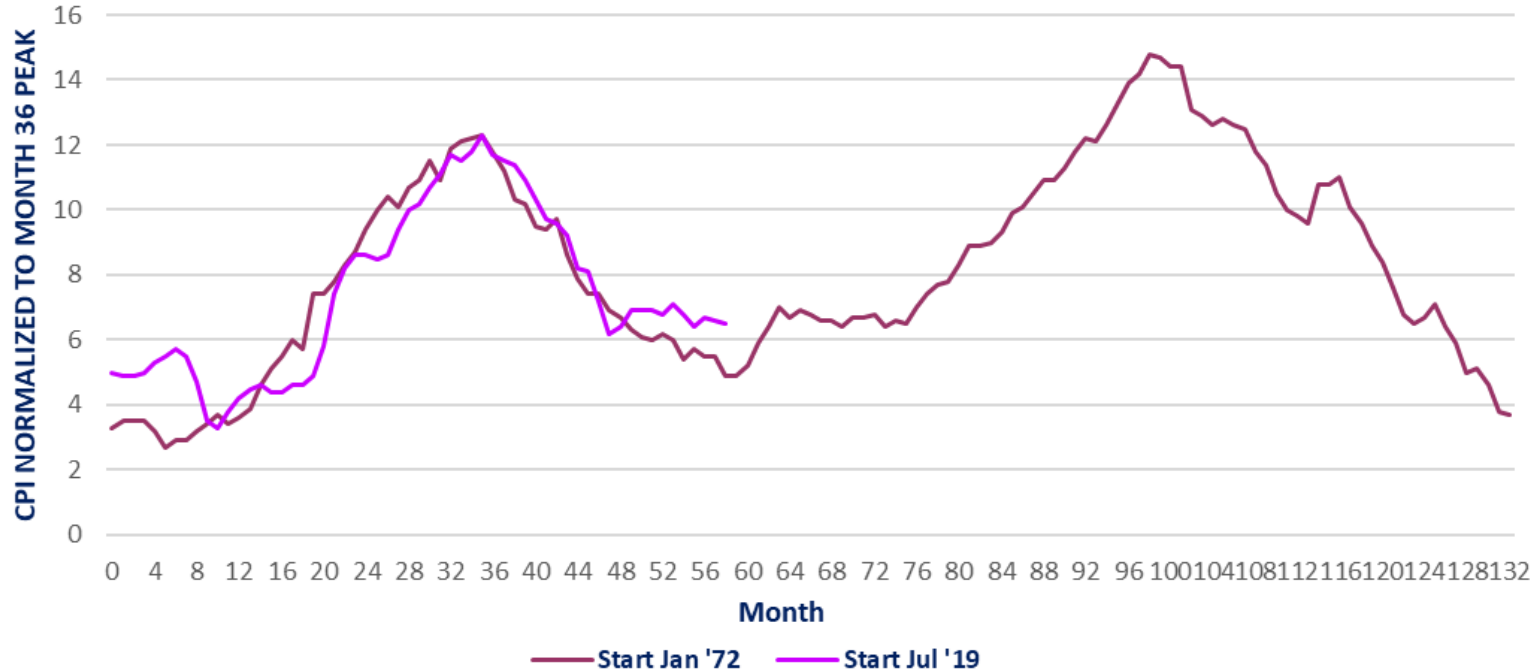
# The Danger of History Repeating



Source – Bureau of Labor Statistics (BLS)

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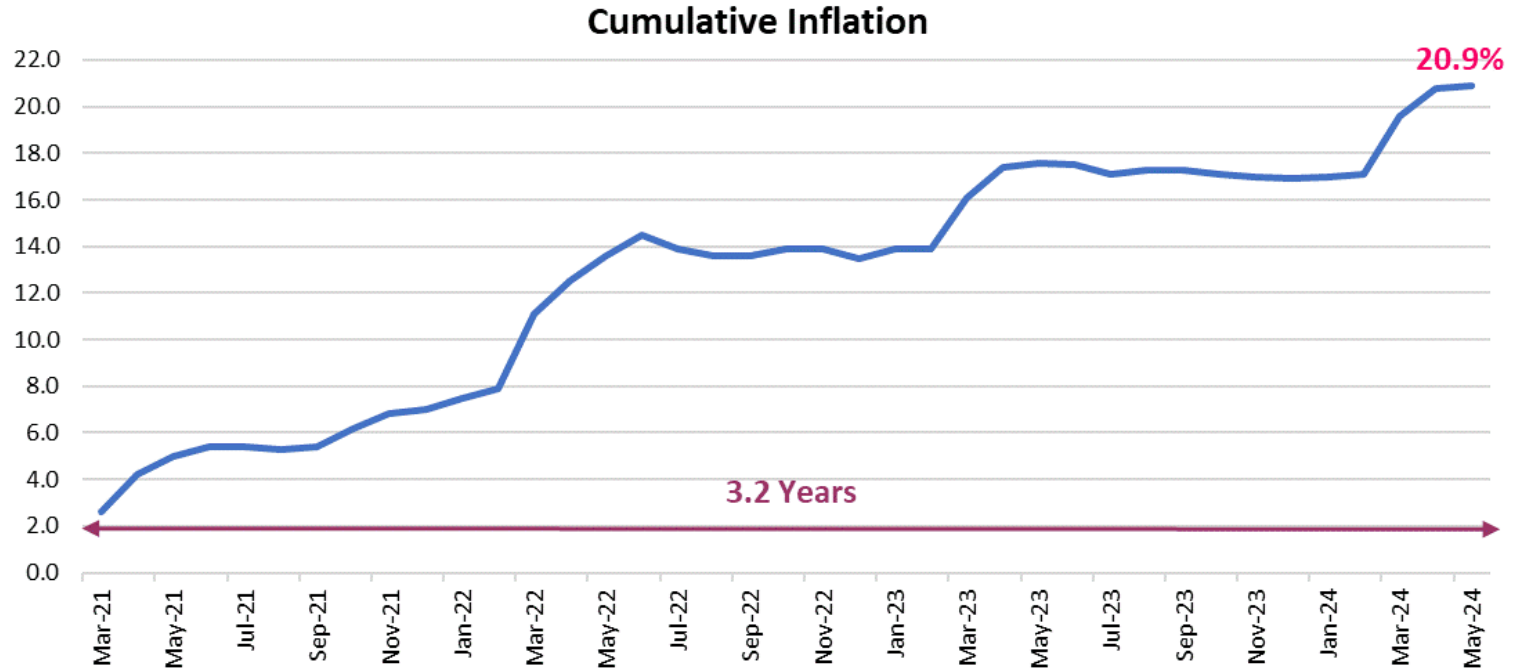
# The Danger of History Repeating



Source – Bureau of Labor Statistics (BLS)

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# Keeping Perspective – What is the Consumer Experiencing?

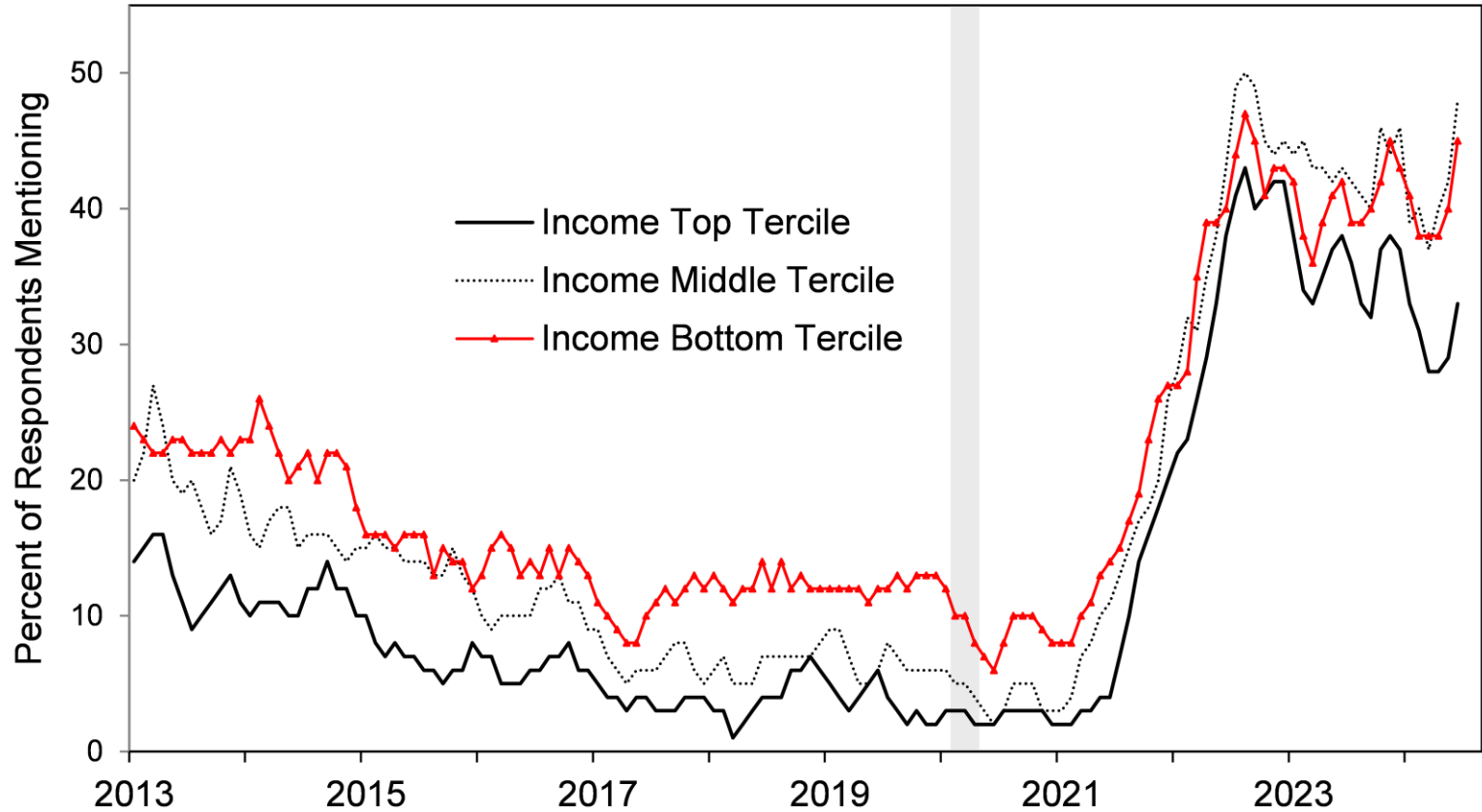


Source – Bureau of Labor Statistics (BLS)

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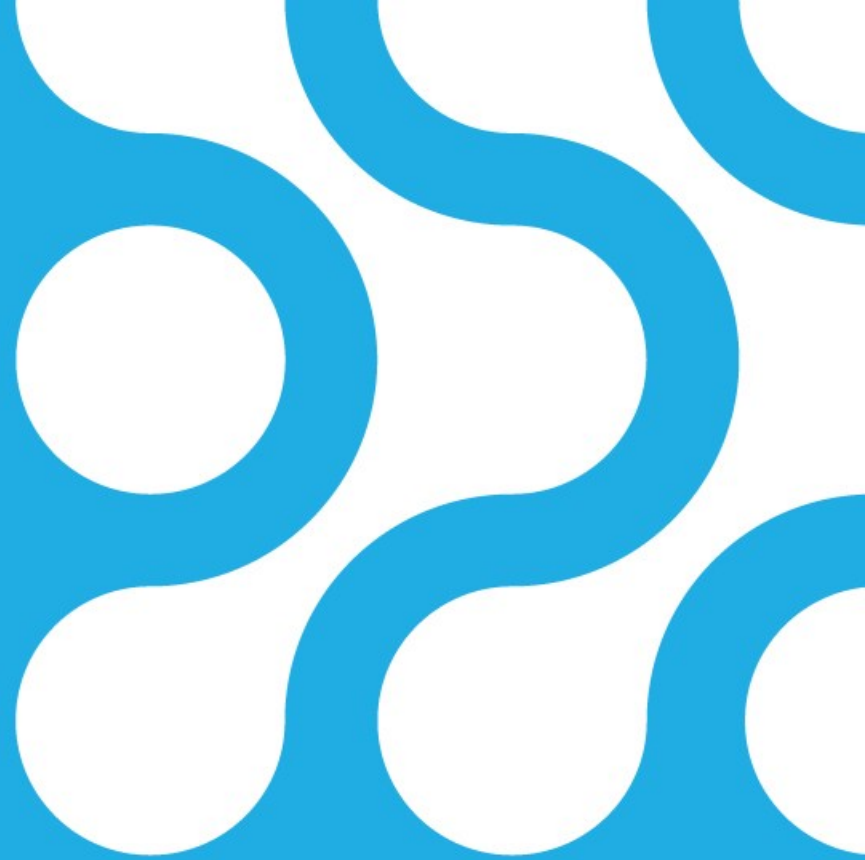
# High Prices as Reason for Poor Personal Finances

(By Income Tercile, 3 Month Moving Averages)



Source – University of Michigan Surveys of Consumers

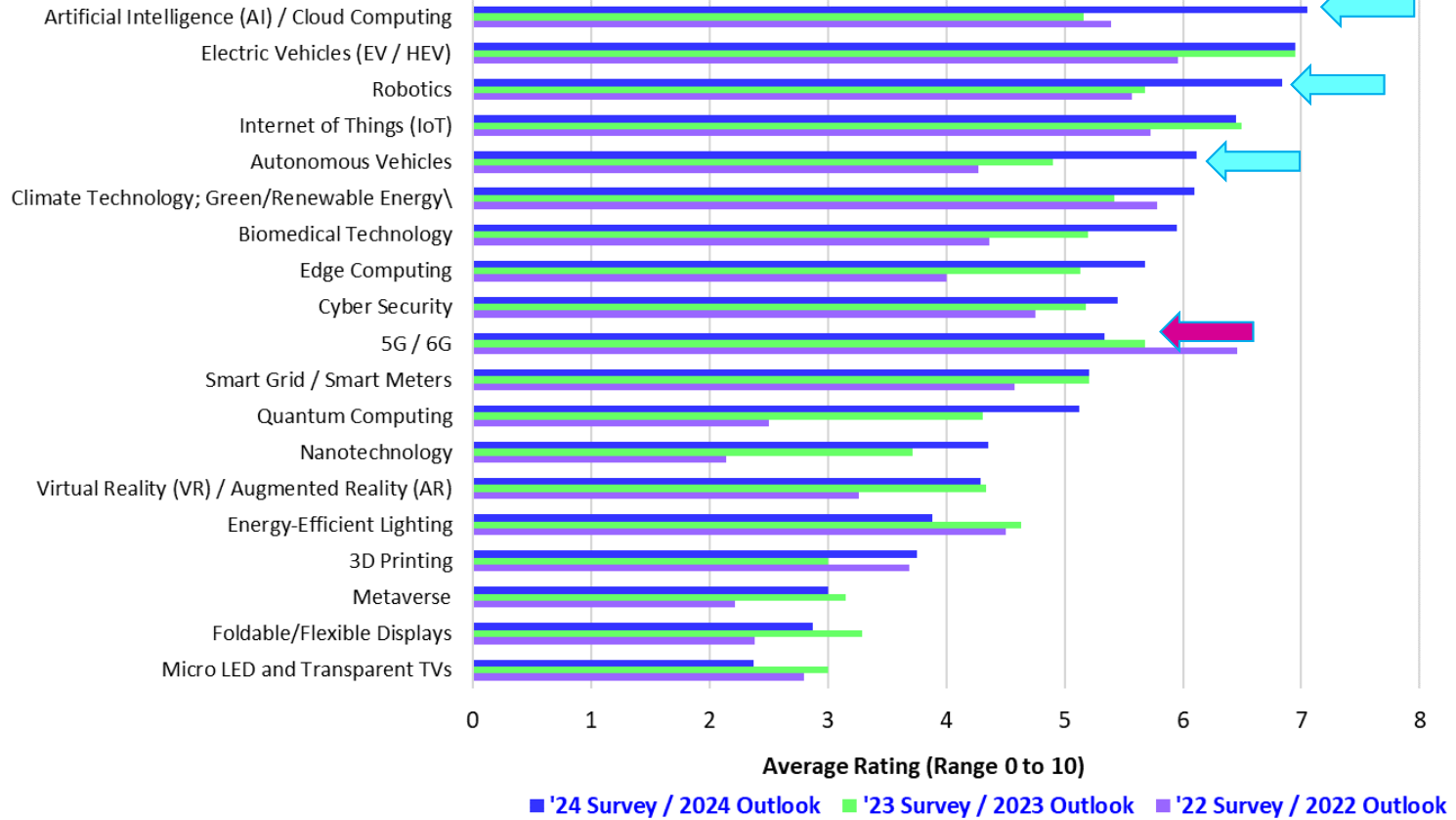
# The Vision Thing





# Top 50 Americas Distributor Technology Outlook - 2024

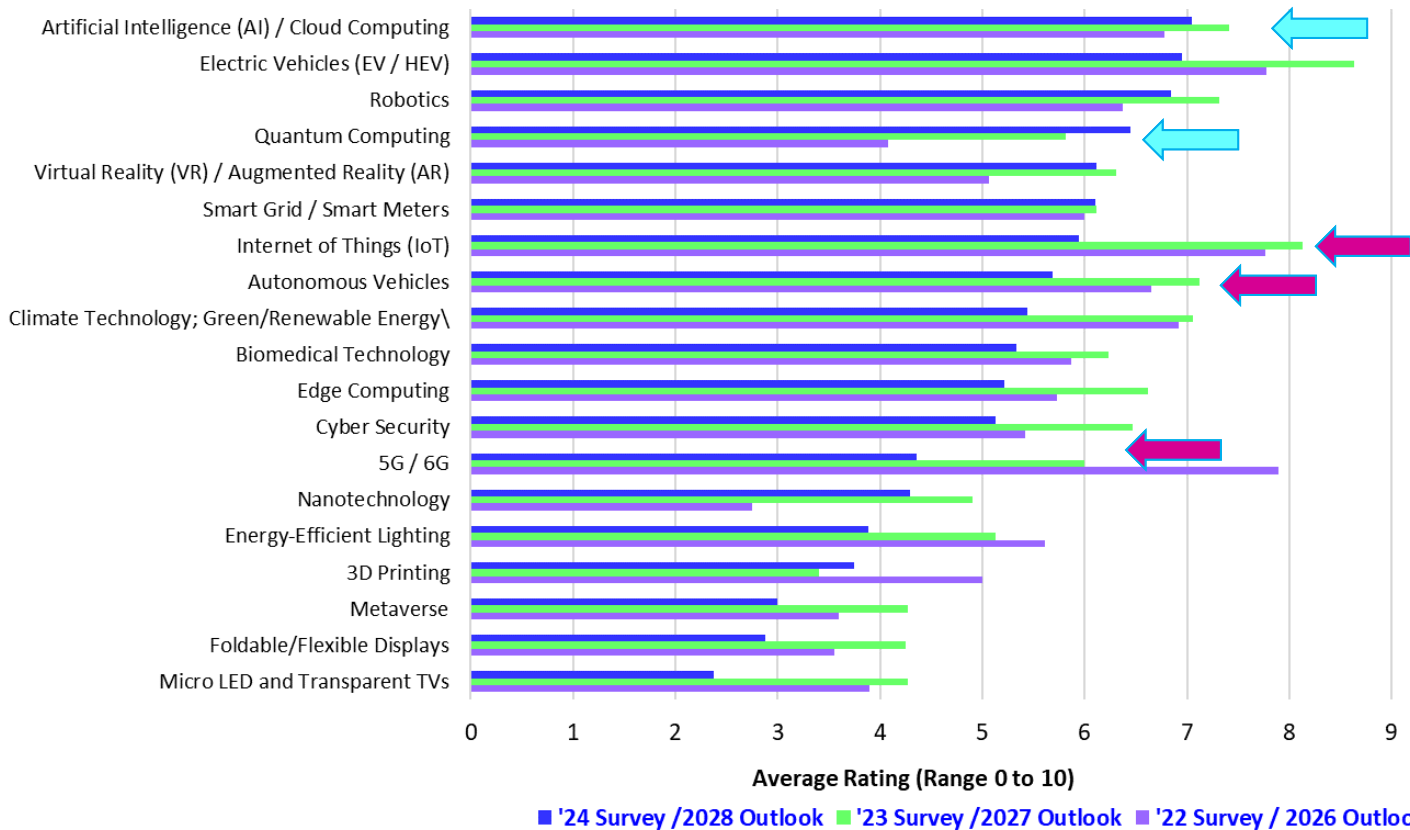
## Technology Sales Growth Driver Average Ratings - Near term Outlook



Con

# Top 50 Americas Distributor Technology Outlook - 2024

## Technology Sales Growth Driver Average Ratings - Long Term Outlook



# Reaching for the Future

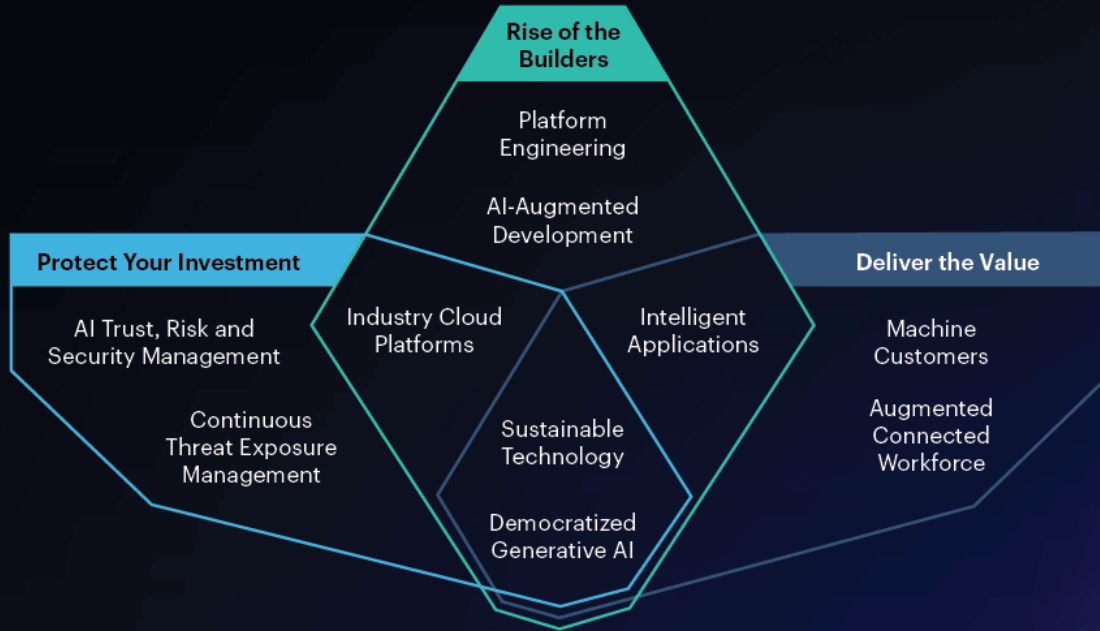


# Top Strategic Technology Trends 2023

- 
- Industry Cloud Platforms
  - Wireless-Value Realization
  - Platform Engineering
  - Metaverse
  - AI TRiSM
  - Superapps
  - Applied Observability
  - Adaptive AI
  - Digital Immune System
  - Sustainable Technology

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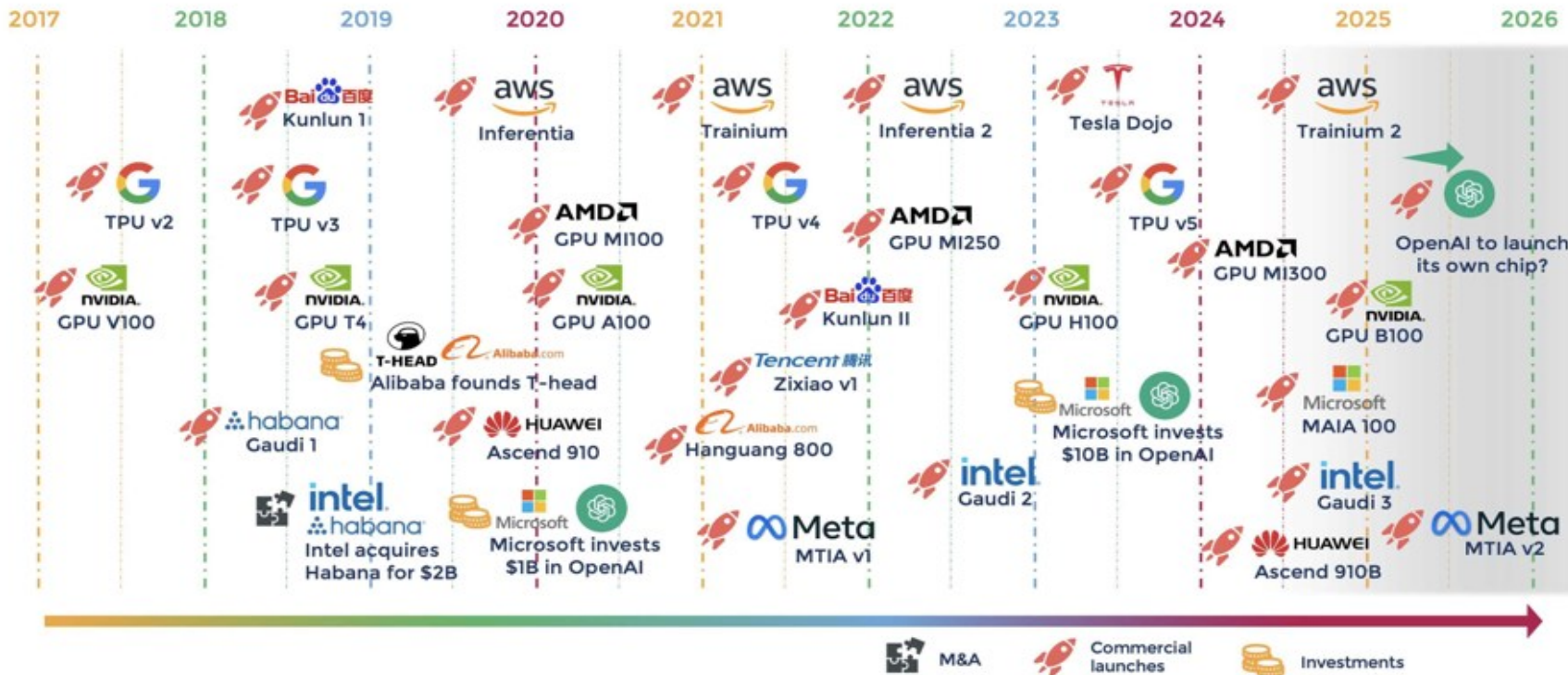
# Top Strategic Technology Trends 2024



# DATACENTER AI PROCESSORS TIMELINE

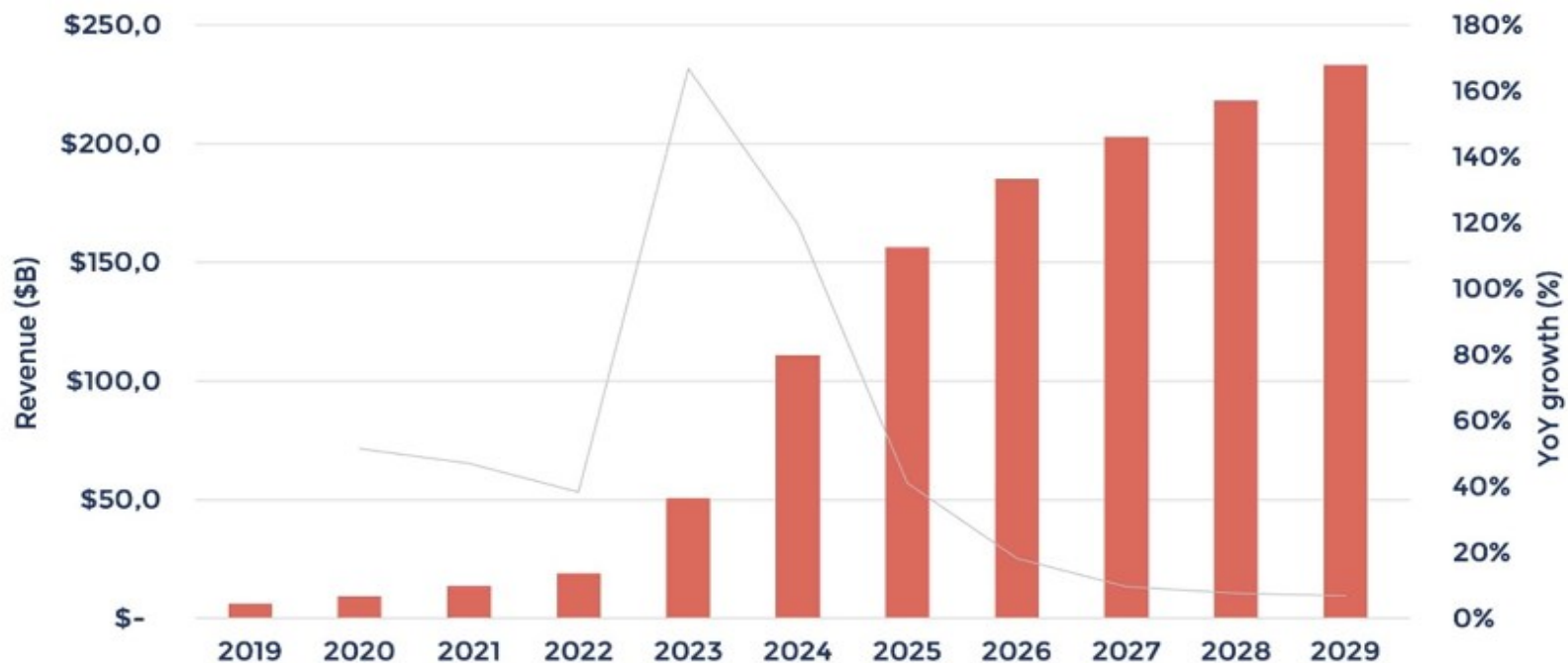
## – LEADING COMPETITOR FOCUS

Source: Generative AI 2024 - Impact on Processors, Memory, Advanced Packaging, and Substrates report, Yole Intelligence, 2024



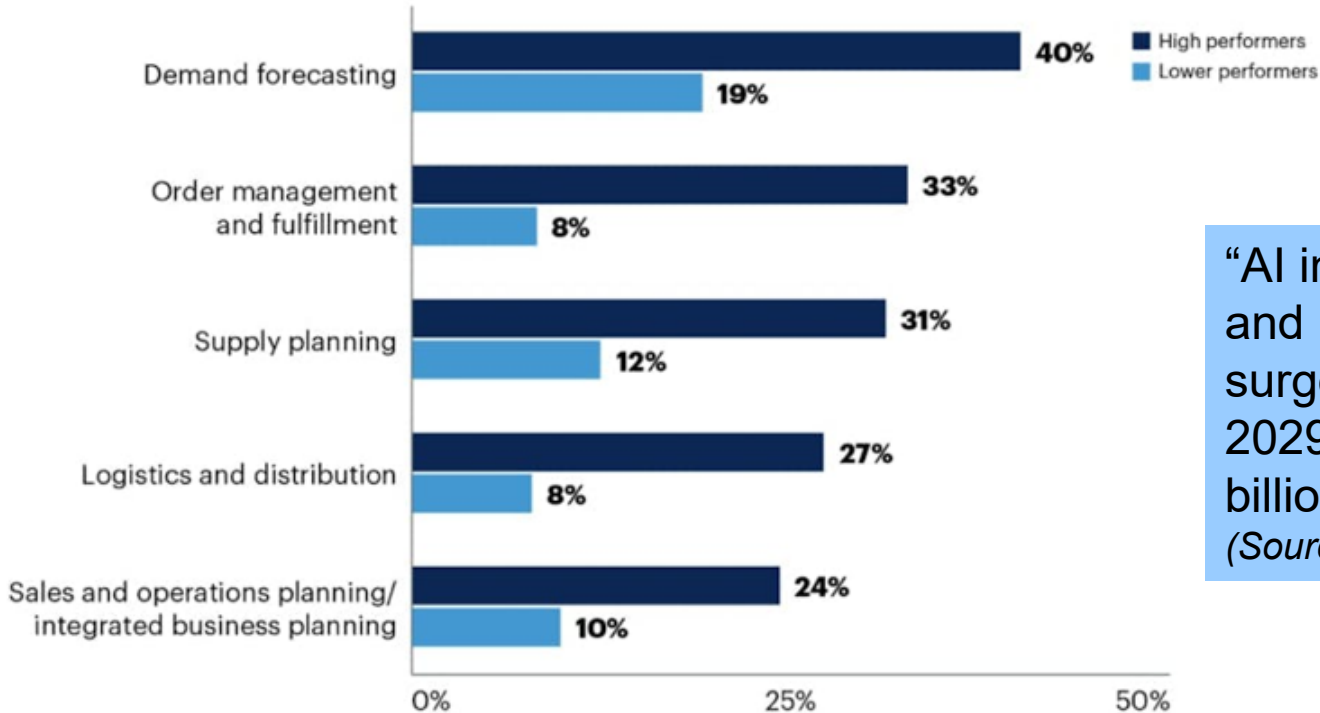
# 2019-2029 DATACENTER GPU AND AI ASIC REVENUE FORECAST

Source: Generative AI 2024 - Impact on Processors, Memory, Advanced Packaging, and Substrates report, Yole Intelligence, 2024



## Top Five Processes Utilizing Supply Chain Data to Automate and/or Optimize Decisions Using AI/ML

Percentage of Respondents



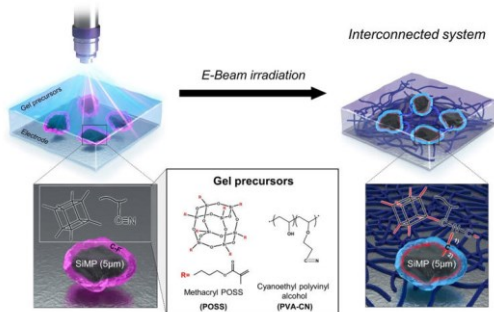
Source – Gartner

“AI in the supply chain and logistics sector will surge to \$3.37 billion by 2029, compared to \$1.71 billion in 2022”  
(Source: Industry Research Biz)

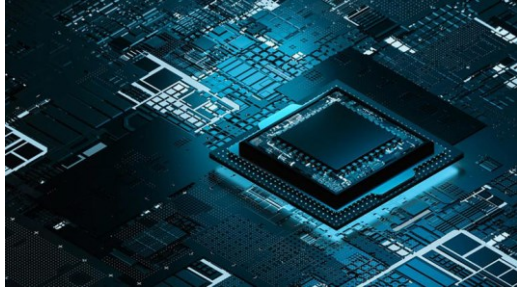
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See article by Andrew Moeller of Flip Electronics – “AI is the New Era of Sourcing”



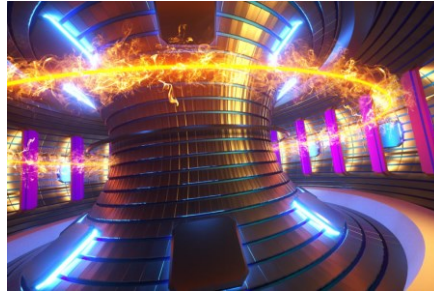


EVs That Go 1,000 Miles on a Single Charge

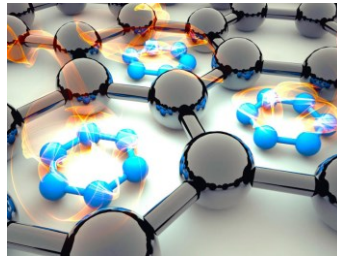


Universal Memory Emerges to Replace RAM and NAND - ULTRARAM

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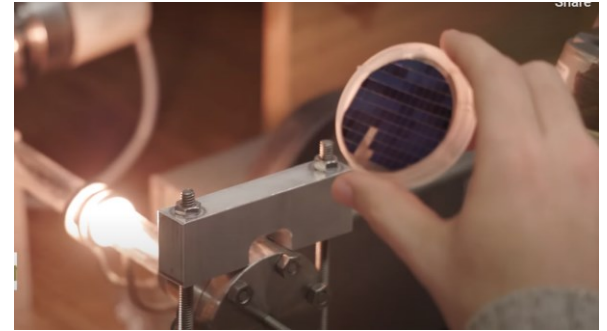


Near-Unlimited Energy  
Commercial Fusion Energy



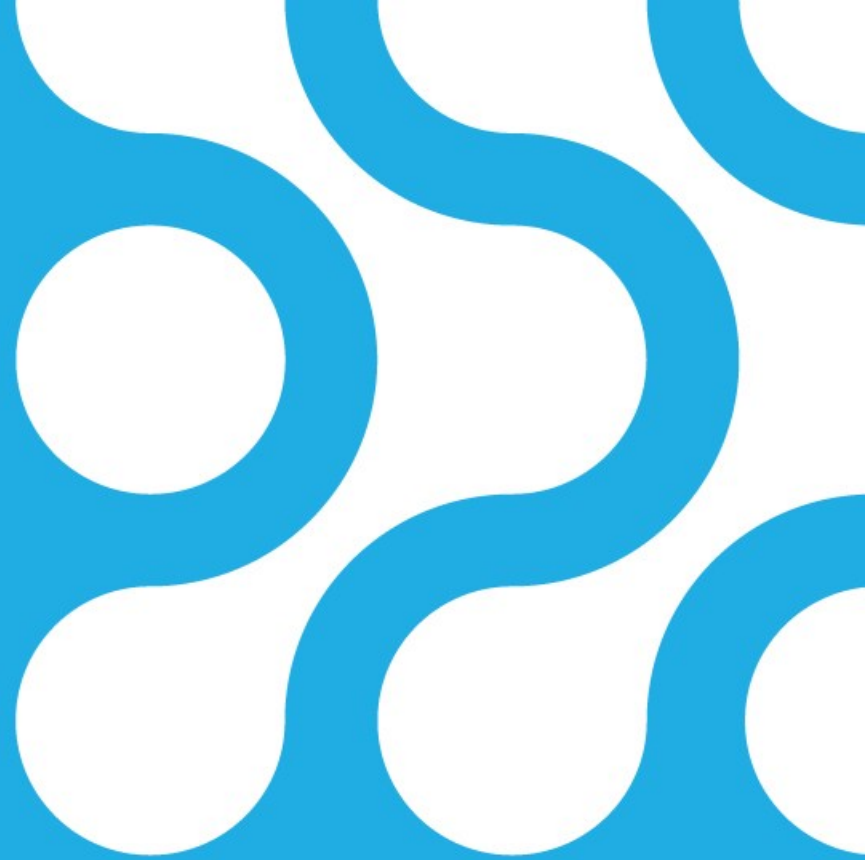
Nanotech Material  
Passes Human Safety Tests

# Technology – Need for Speed and Power



First Operational Graphene-Based Chip  
Ten Times Faster Than Silicon

# Unveiling the Future



# Las Vegas Sphere - \$2.3B Technology Wonder



TechRadar Pro

Handles over 400GB/s of throughput at sub 5 milliseconds of latency and a 12-bit color display at a 444 subsampling.

Connect. Influence. Optimize.

160,000 square-foot interior LED display and 580,000 square-foot Exosphere

4,000TB SSD storage delivering 400GB/s throughput — World's only 16K display

Includes intelligent olfactory system and infrasound tactile system



# CES 2024 Major Theme – Consumer Health



Connect. Influence. Optimize.

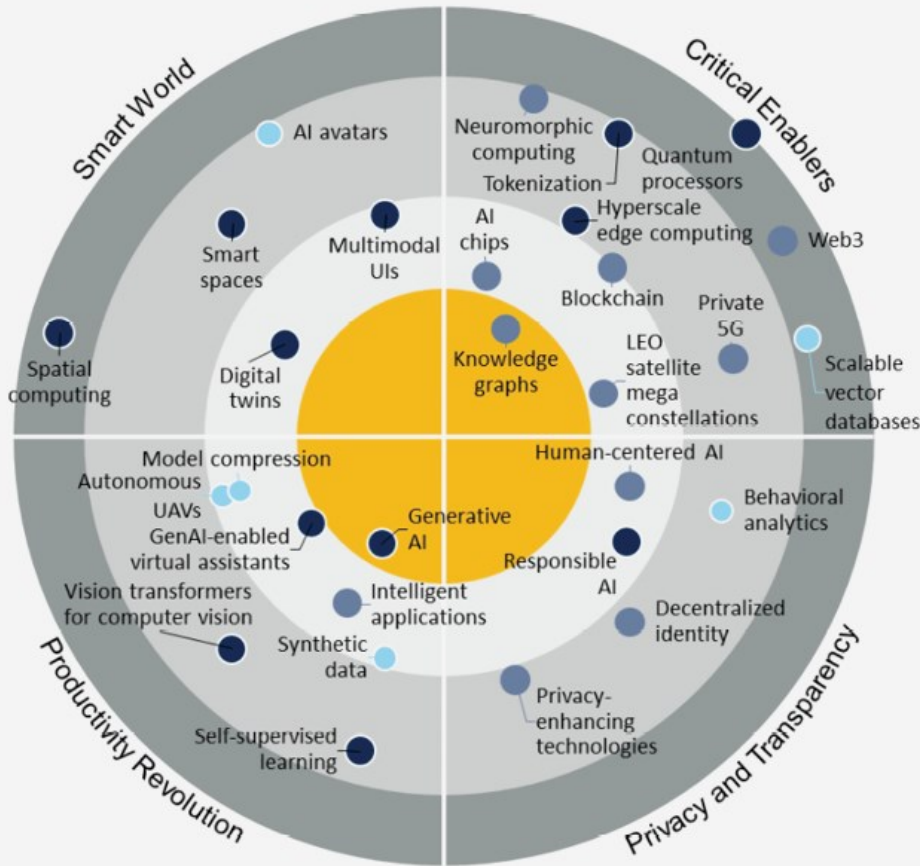


# Concept Cars / Flying Cars!



Connect. Influence. Optimize.

# Impact Radar for 2024



## Range

- 6 to 8 Years
- 3 to 6 Years
- 1 to 3 Years
- Now (0 to 1 Years)

## Mass

- Low
- Medium
- High
- Very High

Conr

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Components Industry Association

# Thank you!

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