The Bishop Report
Performance and Forecast of the World Connector Industry

Issue No. 396 | 4th Quarter 2025 | October 2025

Connector Demand Soars 4th Consecutive Month with Double-digit Growth in Bookings and Billings

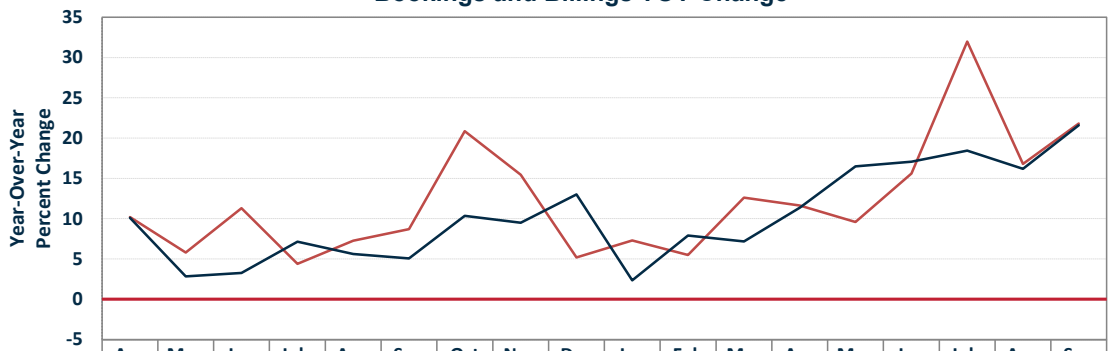
Regional Performance:
Year-to-date, sales are positive or flat in all regions, with the greatest growth in sales in the Asia Pacific region, where sales increased 37.3%, followed by China where sales grew 22.0%. Sales in the remaining regions were either flat (ROW) or had single-digit growth. From a year-over-year perspective, all regions exhibited growth in September, with the greatest growth, like in the previous three months, in the Asia Pacific region, where billings increased a robust +45.9%, followed by China, where billings increased +26.1%. See page 5.

Quarterly Sales:
Sales for 3Q25 were $26,701, up 19.5% over 3Q2024. Based on average sales through the third quarter, Bishop anticipates 4Q25 sales to be $23, 895, up 9.6% over 4Q25, for total 2025 sales of $97,133.

2025 Currency Impact:
The industry registered a YOY increase in sales in September 2025, of +21.6% in USD and +0.7% in local currency.

September bookings increased by +21.8%, while billings increased by +21.6%.

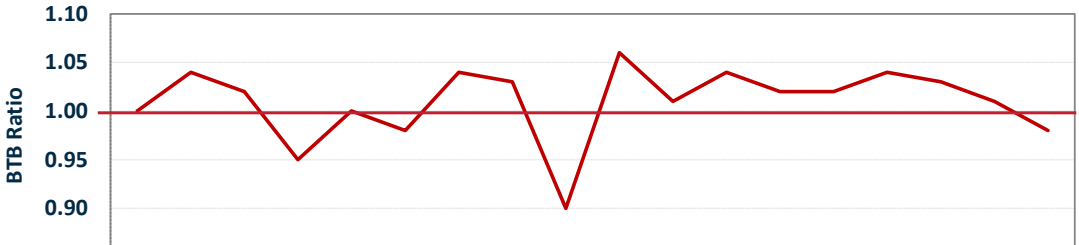
Bookings and Billings YOY Change



	Apr 24	May 24	Jun 24	July 24	Aug 24	Sep 24	Oct 24	Nov 24	Dec 24	Jan 25	Feb 25	Mar 25	Apr 25	May 25	Jun 25	July 25	Aug 25	Sep 25
Bookings	10.2	5.8	11.3	4.4	7.3	8.7	20.9	15.4	5.2	7.3	5.5	12.6	11.6	9.6	15.6	32.0	16.8	21.8
Billings	10.1	2.8	3.3	7.1	5.6	5.1	10.4	9.5	13.0	2.3	7.9	7.2	11.4	16.5	17.1	18.4	16.2	21.6

The book-to-bill ratio in September was 0.98, down from 1.01 in August. This is the first time in 2025 that the book-to-bill has fallen below 1.0.

Connector Industry Book-to-Bill



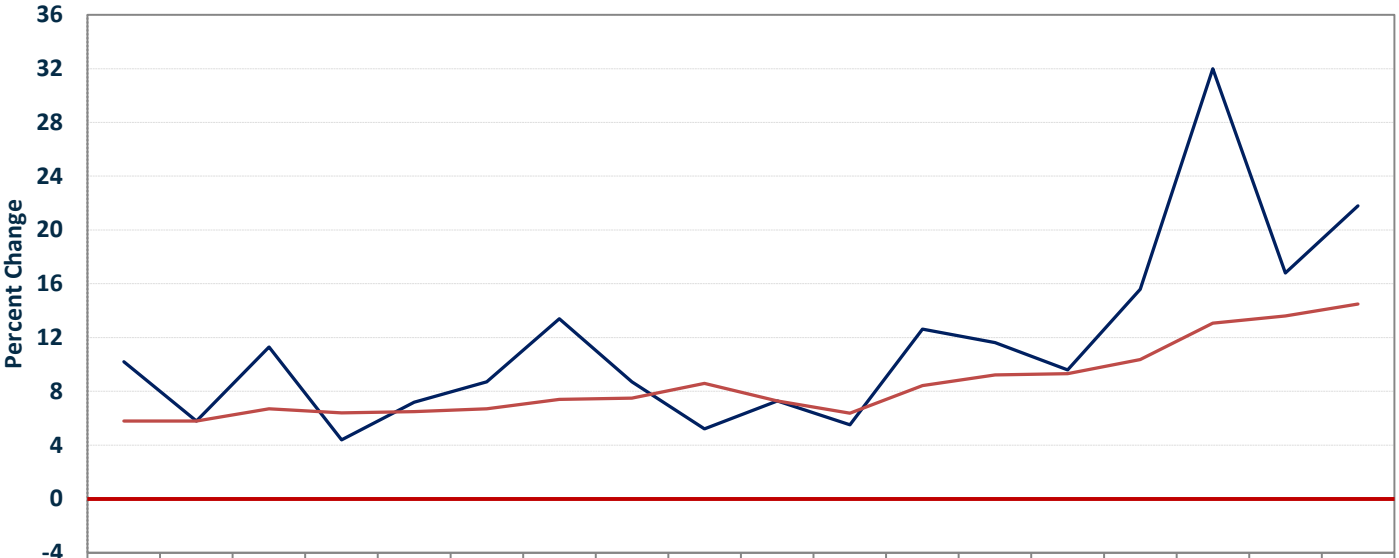
	Apr 24	May 24	Jun 24	Jul 24	Aug 24	Sep 24	Oct 24	Nov 24	Dec 24	Jan 25	Feb 25	Mar 25	Apr 25	May 25	Jun 25	Jul 25	Aug 25	Sep 25
BtB	1.00	1.04	1.02	0.95	1.00	0.98	1.04	1.03	0.90	1.06	1.01	1.04	1.02	1.02	1.04	1.03	1.01	0.98

Booking Highlights and Conclusions

Sequential, Year-Over-Year, and Year-To-Date Bookings Percentage Change – 2023/2024/2025

	Sequential			Year-Over-Year			Year-To-Date		
Month	2023	2024	2025	2023	2024	2025	2023	2024	2025
Jan	-1.3%	9.1%	2.2%	-18.4%	8.3%	7.3%	-18.4%	8.3%	7.3%
Feb	10.1%	5.2%	5.6%	-13.8%	6.8%	5.5%	-18.4%	7.5%	6.4%
Mar	1.2%	-2.9%	2.2%	-12.9%	-1.4%	12.6%	-16.6%	4.4%	8.4%
Apr	-5.1%	3.2%	-0.8%	-9.7%	10.2%	11.6%	-15.0%	5.8%	9.2%
May	13.5%	9.1%	11.9%	-3.9%	5.8%	9.6%	-12.8%	5.8%	9.3%
Jun	-12.7%	-6.8%	-5.2%	-10.3%	11.3%	15.6%	-12.4%	6.7%	10.4%
Jul	0.3%	-5.8%	0.3%	-0.3%	4.4%	32.0%	-10.9%	6.4%	13.1%
Aug	9.2%	11.6%	5.3%	0.7%	7.3%	16.8%	-9.5%	6.5%	13.6%
Sep	-5.4%	-5.0%	-3.5%	-3.7%	8.7%	21.8%	-8.9%	6.8%	14.5%
Oct	-3.2%	9.6%		5.9%	20.9%		-7.6%	8.1%	
Nov	11.8%	4.9%		7.7%	15.4%		-6.3%	8.8%	
Dec	-13.7%	-21.6%		0.2%	5.2%		-5.9%	8.6%	

Bookings - YOY and YTD



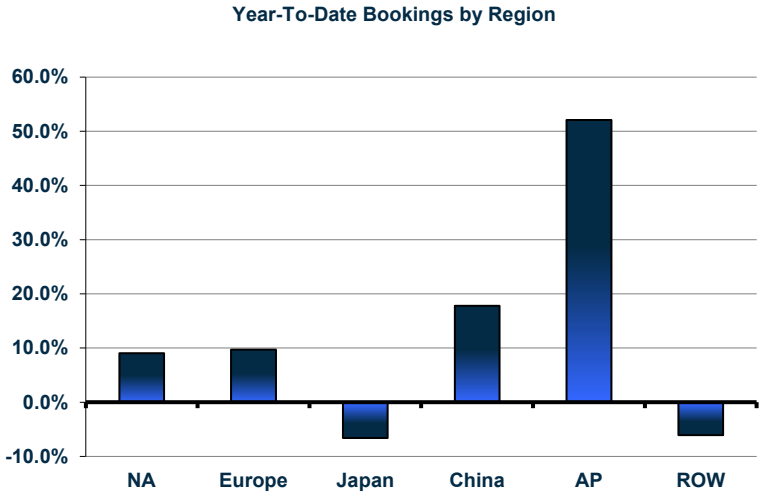
	A 24	M 24	J 24	J 24	A 24	S 24	O 24	N 24	D 24	J 25	F 25	M 25	A 25	M 25	J 25	J 25	A 25	S 25
YOY	10.2	5.8	11.3	4.4	7.2	8.7	13.4	8.7	5.2	7.3	5.5	12.6	11.6	9.6	15.6	32.0	16.8	21.8
YTD	5.8	5.8	6.7	6.4	6.5	6.7	7.4	7.5	8.6	7.3	6.4	8.4	9.2	9.3	10.4	13.1	13.6	14.5

- September bookings increased +21.8% year-over-year.
- Orders decreased -3.5% on a sequential basis in September.
- The book-to-bill ratio for September was 0.98, down from 1.01 in August.

Regional Performance: BOOKINGS

September 2025 Bookings

Region	Sequential	YOY	YTD
NA	-4.9%	24.2%	9.1%
Europe	1.0%	9.8%	9.7%
Japan	2.4%	-7.2%	-6.6%
China	13.2%	33.1%	17.8%
AP	-33.2%	41.2%	52.1%
ROW	-17.8%	-5.0%	-6.1%
Total	-3.5%	21.8%	14.5%



- Year-to-date, September bookings increased +14.5%, with the greatest growth in the Asia Pacific region, where sales increased a robust +52.1%. Sequentially only half the regions, Europe, Japan, and China saw an increase, with China increasing the most, with growth of +13.2%. The regions that declined sequentially saw the greatest decrease in the Asia Pacific region, where sequential sales declined -33.2%, followed by the ROW region where sequential sales delined -17.8%.

- In September, year-over-year orders rose in all but two regions, Japan and the ROW region, where bookings declined -7.2% and -5.0% respectively. All other regions saw growth, with Asia Pacific growing the most, up a very strong +41.2%, followed by the Chinese region, where sales increased +33.1%.

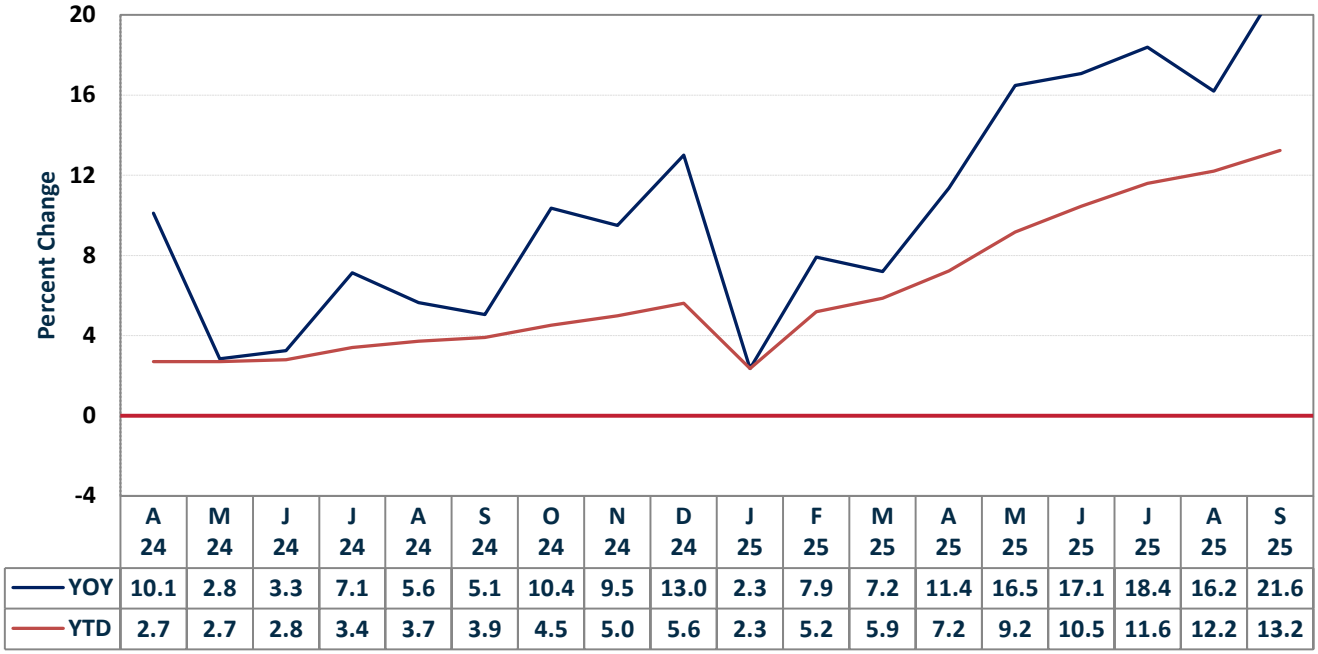
- Year-over-year total world order growth has now been positive for 18 consecutive months.

Billing Highlights and Conclusions

Sequential, Year-Over-Year, and Year-To-Date Billings Percentage Change – 2023/2024/2025

	Sequential			Year-Over-Year			Year-To-Date		
Month	2023	2024	2025	2023	2024	2025	2023	2024	2025
Jan	-3.1%	5.8%	5.5%	0.5%	3.5%	2.3%	0.5%	3.5%	2.3%
Feb	9.7%	2.8%	9.9%	-1.0%	-1.0%	7.9%	-0.3%	1.2%	5.2%
Mar	-0.9%	0.4%	-0.1%	0.3%	-1.1%	7.2%	-0.1%	0.4%	5.9%
Apr	-7.9%	1.7%	1.1%	-1.0%	10.1%	11.4%	-0.3%	2.7%	7.2%
May	12.1%	4.3%	11.6%	-0.6%	2.8%	16.5%	-0.4%	2.7%	9.2%
Jun	-6.0%	-4.9%	-6.9%	-6.7%	3.3%	17.1%	-1.5%	2.8%	10.5%
Jul	-1.7%	1.8%	0.9%	-1.2%	7.1%	18.4%	-1.4%	3.4%	11.6%
Aug	7.2%	5.8%	7.4%	-2.8%	5.6%	16.2%	-1.6%	3.7%	12.2%
Sep	-2.7%	-3.0%	-0.2%	-10.0%	5.1%	21.6%	-2.6%	3.9%	13.2%
Oct	-2.1%	3.2%		2.5%	10.4%		-2.1%	4.5%	
Nov	7.9%	5.1%		0.0%	9.5%		-1.9%	5.0%	
Dec	-12.4%	-9.5%		-2.8%	13.0%		-2.7%	5.6%	

Billings - YOY and YTD



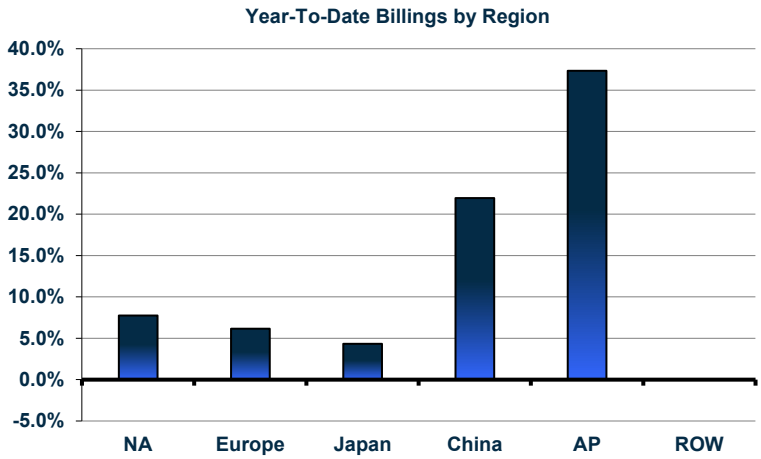
	A 24	M 24	J 24	J 24	A 24	S 24	O 24	N 24	D 24	J 25	F 25	M 25	A 25	M 25	J 25	J 25	A 25	S 25
YOY	10.1	2.8	3.3	7.1	5.6	5.1	10.4	9.5	13.0	2.3	7.9	7.2	11.4	16.5	17.1	18.4	16.2	21.6
YTD	2.7	2.7	2.8	3.4	3.7	3.9	4.5	5.0	5.6	2.3	5.2	5.9	7.2	9.2	10.5	11.6	12.2	13.2

- September billings grew +13.2% year-to-date and +21.6% year-over-year.
- Sequentially, September billings decreased -0.2%.
- Year-over-year sales growth has now been positive for 18 consecutive months and year-to-date for 21 consecutive months.

Regional Performance: BILLINGS

September 2025 Billings

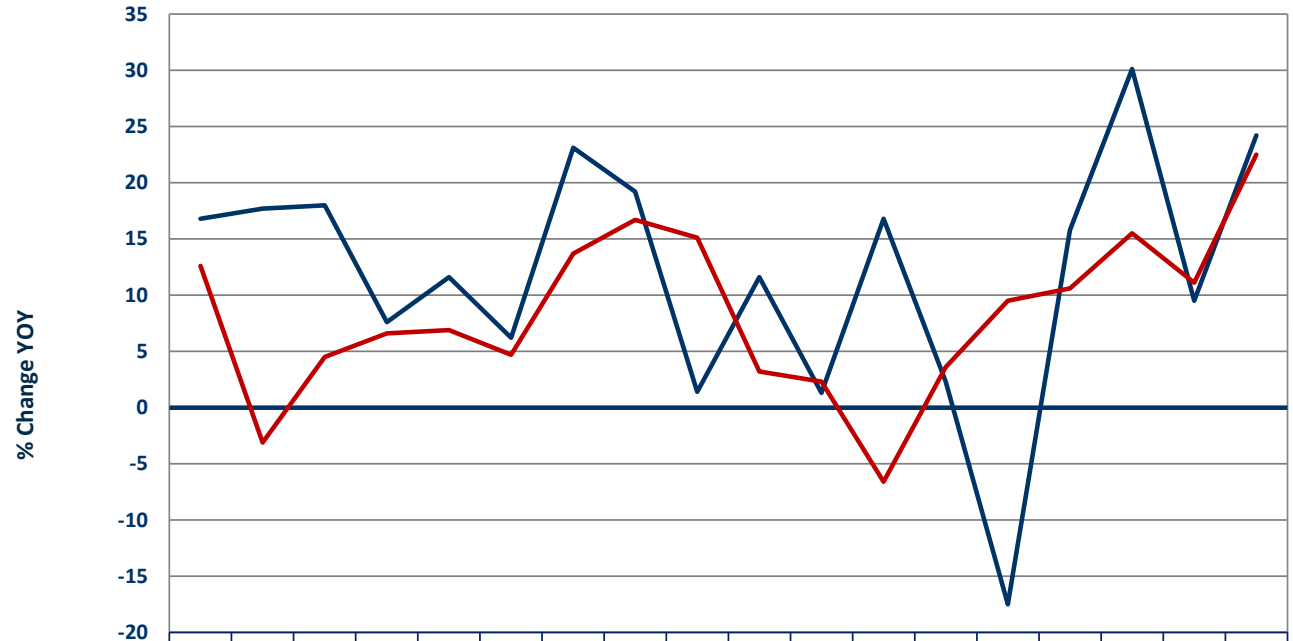
Region	Sequential	YOY	YTD
NA	-2.7%	22.5%	7.7%
Europe	5.3%	12.6%	6.2%
Japan	4.0%	2.6%	4.3%
China	-1.0%	26.1%	22.0%
AP	-3.9%	45.9%	37.3%
ROW	-4.1%	6.6%	0.0%
Total	-0.2%	21.6%	13.2%



- September connector sales increased by +21.6% compared to the same period last year.
- The only two regions showing a sequential increase in September were Europe and Japan, where sequential sales increased +5.3% and +4.0% respectively. All other regions showed a decrease in sequential sales, with the ROW region showing the greatest decline at -4.1%, followed by the Asia Pacific region, where sales declined -3.9%.
- Year-over-year, all regions saw an increase, with the greatest increase in the Asia Pacific region where sales increased +45.9%, followed by the China region, where sales increased +26.1%.
- Year-to-date all regions but the ROW region, where sales were flat, saw an increase. The greatest year-to-date growth was in the Asia Pacific region where sales increased +37.3%, followed by the Chinese region, where sales increased +22.0%. The remaining regions all exhibited single-digit growth.

North America: The following chart displays the year-over-year percentage change in bookings and billings for the last 18 months. The monthly book-to-bill (BTB) ratio is also displayed.

North America Bookings and Billings
Year-Over-Year Percentage Change
& Book-To-Bill Ratio



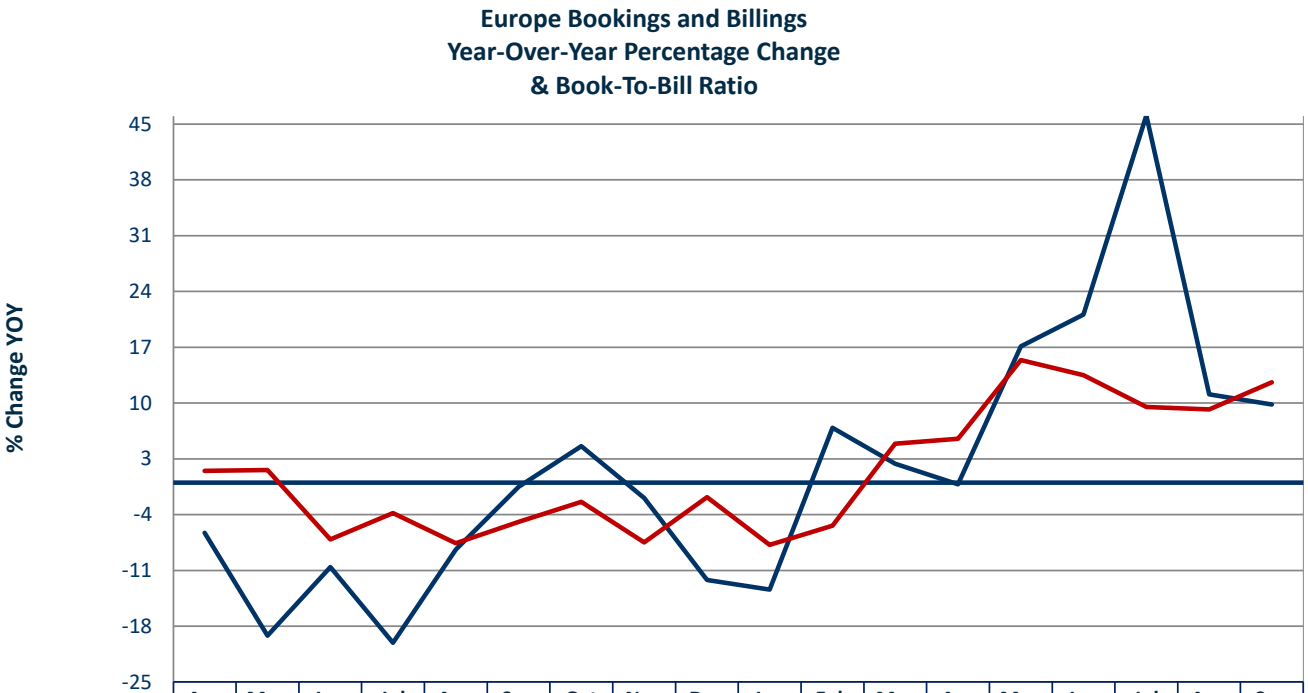
	Apr 24	May 24	Jun 24	Jul 24	Aug 24	Sep 24	Oct 24	Nov 24	Dec 24	Jan 25	Feb 25	Mar 25	Apr 25	May 25	Jun 25	Jul 25	Aug 25	Sep 25
Bookings	16.8	17.7	18.0	7.6	11.6	6.2	23.1	19.2	1.4	11.6	1.3	16.8	2.3	-17.5	15.8	30.1	9.5	24.2
Billings	12.6	-3.1	4.5	6.6	6.9	4.7	13.7	16.7	15.1	3.2	2.3	-6.6	3.6	9.5	10.6	15.5	11.1	22.5
Billing SEQ	-1.4	3.5	-3.7	-0.9	9.4	-7.0	3.2	4.0	-7.7	4.8	11.3	-0.3	-0.8	11.9	-4.8	-2.1	13.1	-2.7
BTB	0.99	1.13	0.99	0.96	1.00	0.98	1.03	1.01	0.81	1.13	1.02	1.09	1.00	0.94	1.05	1.07	1.00	0.98

North America Performance

- Sales increased +22.5% year-over-year in September, the highest billings number since May of 2023, while orders increased +24.2%, up from +9.5% in August. Sequentially, North American billings decreased -2.7% after increasing +13.1% in August. The book-to-bill ratio dropped to 0.98 in September.
- "The Consumer Price Index for All Urban Consumers (CPI-U) increased 0.3 percent on a seasonally adjusted basis in September, after rising 0.4% in August. Also, over the last 12 months, the all items index increased 3.0% before seasonal adjustment", according to the US Bureau of Labor Statistics.
- "Retail sales in the US increased 0.4% MoM in Sept 2025, the same as an upwardly revised 0.6% rise in July and beating market expectations of a smaller 0.2% gain", while the US unemployment rate rose to 4.3% in August*, up from 4.2% in July, but aligning with market expectations to reflect the highest proportion of joblessness since October of 2021, according to Trading Economics.
- As of October 2nd, the number of new vehicles sold in the U.S. was 1,256,366 units, up 6.2% year-over-year, according to MarkLines.

**September readings not published at the time of this reporting.*

Europe: The following chart displays the year-over-year percentage change in bookings and billings for the last 18 months. The monthly book-to-bill ratio is also displayed.



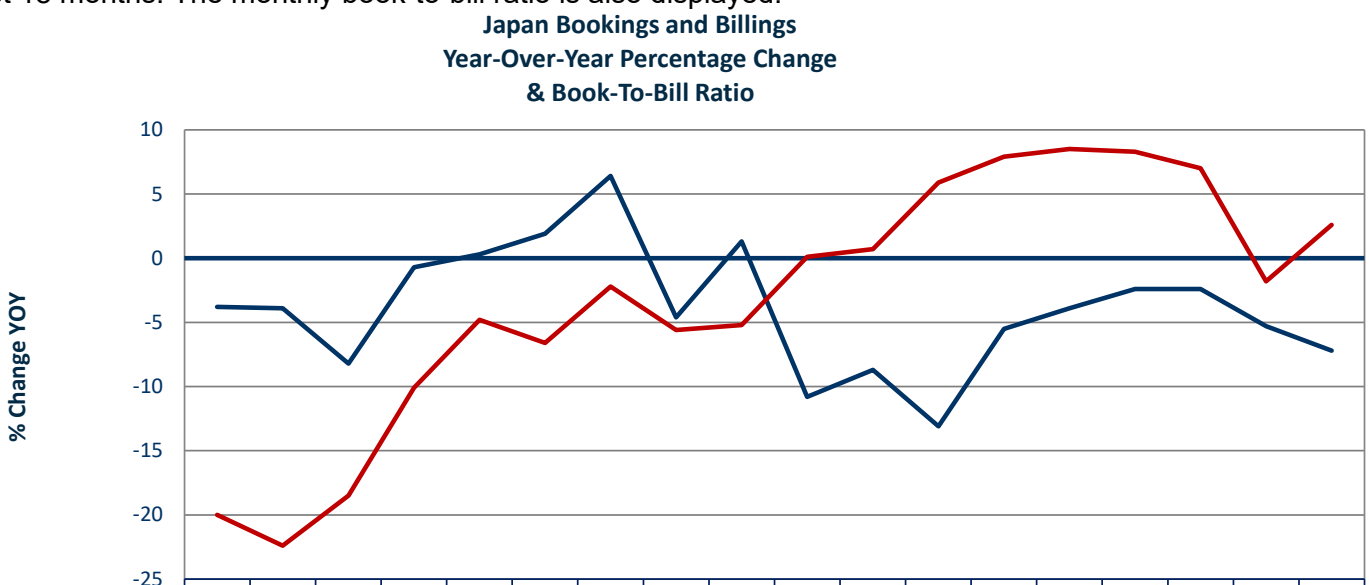
	Apr 24	May 24	Jun 24	Jul 24	Aug 24	Sep 24	Oct 24	Nov 24	Dec 24	Jan 25	Feb 25	Mar 25	Apr 25	May 25	Jun 25	Jul 25	Aug 25	Sep 25
Bookings	-6.3	-19.2	-10.6	-20.1	-8.4	-0.5	4.6	-1.9	-12.2	-13.4	6.9	2.4	-0.2	17.1	21.1	46.1	11.1	9.8
Billings	1.5	1.6	-7.1	-3.8	-7.6	-4.9	-2.4	-7.5	-1.8	-7.8	-5.4	4.9	5.5	15.4	13.5	9.5	9.2	12.6
Billing SEQ	-1.4	4.5	-8.3	-2.3	7.7	1.6	-8.3	6.2	-18.5	24.7	20.5	-5.5	-0.3	16.0	-12.7	-5.2	10.4	5.3
BTB	0.99	0.96	0.97	0.81	0.92	0.92	0.98	1.06	0.93	0.97	1.06	0.99	0.95	0.97	1.04	1.01	0.92	0.89

Europe Performance

- Bookings increased +9.8% in September, down from +11.1% in August, and July's high bookings of +46.1%. Billings increased by +12.6%, up from +9.2% in August. Sequentially, sales increased +5.3%. The book-to-bill ratio was 0.89, down from 0.92 in August.
- "By August* 2025 year-to-date, new EU car registrations edged down by 0.1% compared to the same period last year, despite marking a second consecutive month of positive growth", according to the European Automobile Manufacturers' Association (ACEA). "The euro area annual inflation rate was 2.2% in September 2025, up from 2.0% in August", according to Eurostat.
- "In August* 2025, the euro area seasonally adjusted unemployment rate was 6.3%, up from 6.2% in July 2025 and stable compared with August 2024. The EU unemployment rate was 5.9% in August 2025, stable compared with July 2025 and with August 2024", according to Eurostat.
- "In September 2025, the Economic Sentiment Indicator (ESI) ticked up in the EU (+0.6 points to 95.5) and the Euro Area (+0.2 points to 95.5). The Employment Expectations Indicator (EEI) dipped compared to August (EU: -0.9 points to 99.1, Euro Area: -1.3 points to 96.4). Both indicators continue to score below their long-term average of 100.", according to the European Commission.

**September readings not published at the time of this reporting.*

Japan: The following chart displays the year-over-year percentage change in bookings and billings for the last 18 months. The monthly book-to-bill ratio is also displayed.



	Apr 24	May 24	Jun 24	Jul 24	Aug 24	Sep 24	Oct 24	Nov 24	Dec 24	Jan 25	Feb 25	Mar 25	Apr 25	May 25	Jun 25	Jul 25	Aug 25	Sep 25
Bookings	-3.8	-3.9	-8.2	-0.7	0.3	1.9	6.4	-4.6	1.3	-10.8	-8.7	-13.1	-5.5	-3.9	-2.4	-2.4	-5.3	-7.2
Billings	-20.0	-22.4	-18.5	-10.1	-4.8	-6.6	-2.2	-5.6	-5.2	0.1	0.7	5.9	7.9	8.5	8.3	7.0	-1.8	2.6
Billing SEQ	0.8	0.3	1.9	1.3	5.3	-0.5	1.5	1.8	-5.7	-13.6	14.3	0.8	1.9	0.9	1.9	-0.1	-2.8	4.0
BTB	1.17	1.20	1.01	1.07	1.04	1.08	1.07	1.08	1.07	0.93	1.00	1.03	1.00	1.04	1.00	0.98	1.01	1.00

Japan Performance

- Japan's September year-over-year bookings decreased -7.2%, while sales increased +2.6%. Sequentially, sales increased +4.0%, after declining in August for the first time since January. Japan's book-to-bill ratio was 1.00, down from 1.01 in August.
- "Japan's core consumer price index, which excludes fresh food but includes energy, climbed 2.9% year-over-year in September 2025, accelerating for the first time since May and in line with market forecasts. The latest figure rose from 2.7% in the previous month — the lowest level since November 2024 — and remained above the Bank of Japan's 2% target", according to Trading Economics.
- "The S&P Global Japan Composite PMI registered 51.3 in Sept. 2025, above the flash estimate of 51.1 but down from 52.1 in the previous month, marking the lowest level since May. Despite this slowdown, it signaled the 6th consecutive month of private sector growth." according to Trading Economics.
- "Japan's unemployment rate rose to 2.6% in August* 2025 from 2.3% in the previous month, surpassing market estimates of 2.4% and marking the highest reading since July 2024", according to Trading Economics. New vehicle sales in September decreased 2.4% year-over-year to 428.2K units, according to MarkLine.
- "Japan's exports rose 4.2% year-on-year in September 2025, marking the first increase since April and the strongest growth since February, supported by a weaker yen and a recently signed trade deal with Washington that eased tariffs on Japanese goods. However, the latest result fell short of market expectations of a 4.6% rise, as shipments to the U.S. declined for the sixth consecutive month", according to Trading Economics.

**September readings not published at the time of this reporting.*

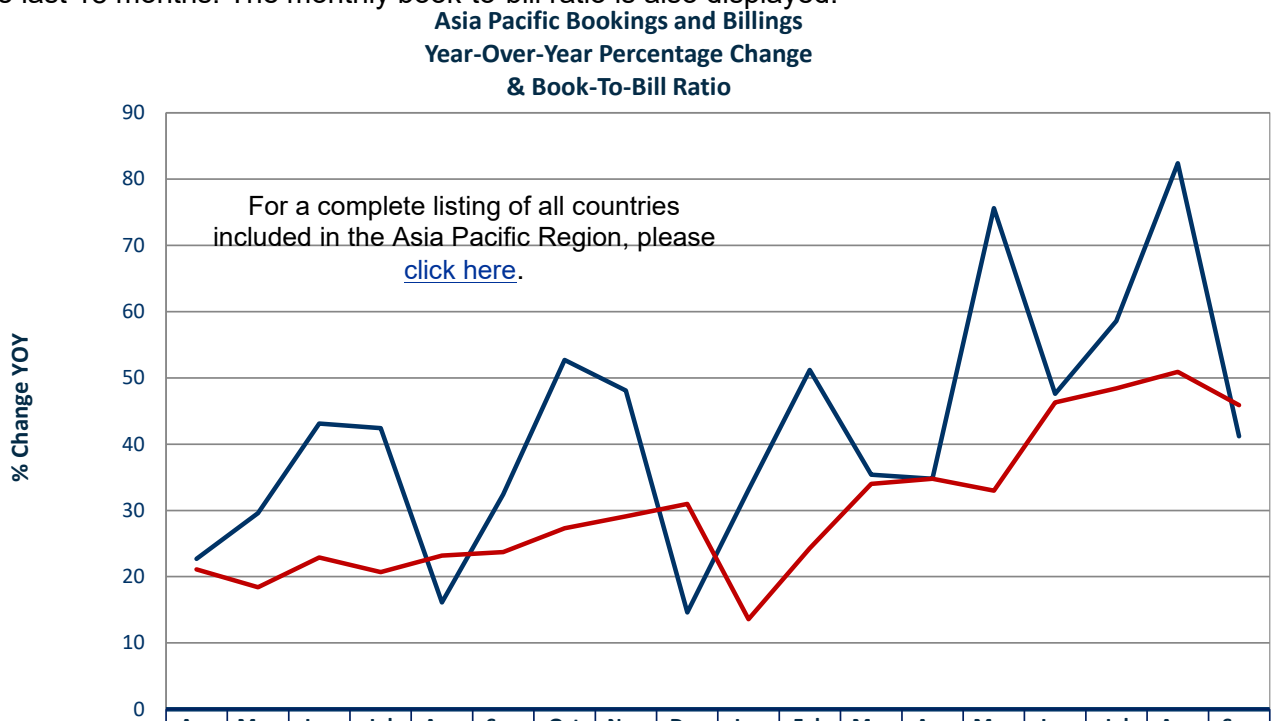
China: The following chart displays the year-over-year percentage change in bookings and billings for the last 18 months. The monthly book-to-bill ratio is also displayed.

	Apr 24	May 24	Jun 24	Jul 24	Aug 24	Sep 24	Oct 24	Nov 24	Dec 24	Jan 25	Feb 25	Mar 25	Apr 25	May 25	Jun 25	Jul 25	Aug 25	Sep 25
Bookings	21.2	13.4	17.9	14.2	13.6	15.1	16.5	12.3	0.5	23.8	-0.5	19.9	33.2	17.5	1.3	18.4	13.4	33.1
Billings	19.2	12.8	9.5	19.2	14.1	11.0	14.5	13.7	19.2	10.2	35.9	22.3	21.7	22.7	20.4	21.1	20.2	26.1
Billing SEQ	7.2	4.9	-5.8	11.4	1.5	-3.7	14.2	6.2	-6.1	-4.3	-1.5	3.9	4.0	8.2	-10.3	8.7	1.7	-1.0
BTB	1.00	1.01	1.08	1.00	1.06	1.08	1.03	1.01	0.97	1.06	0.85	1.04	1.09	0.96	0.96	0.99	1.04	1.19

China Performance

- China's September sales grew +26.1% on a year-over-year basis. Bookings increased by a robust +33.1% in September, while sequentially, sales decreased by -1.0%. The book-to-bill increased to 1.19, up from 1.04 in August and the strongest book-to-bill in over 18 months.
- “China’s Consumer Price Index (CPI) a main gauge of inflation, was down 0.3 percent year on year in September, data from the National Bureau of Statistics of China showed. China’s official PMI came in at 49.8%, showing a smaller contraction than estimates of 49.6.
- In September, “vehicle production and sales volumes totaled 3.276 million and 3.226 million units, up 17.1% and 14.9% year-over-year, respectively. Year-to-date production and sales volumes were 24.333 million and 24.363 million units, up 13.3% and 12.9% respectively year-over-year”, according to MarkLines.
- "China’s surveyed unemployment rate fell to 5.2% in September 2025, compared to market expectations and August’s six-month high of 5.3%“, according to Trading Economics.
- “China's exports increased by 8.3% year-on-year to a seven-month high of USD 328.6 billion in September 2025, surpassing expectations for a 6% rise and accelerating from a revised 4.3% gain in August”, according to Trading Economics.

Asia Pacific: The following chart displays the year-over-year percentage change in bookings and billings for the last 18 months. The monthly book-to-bill ratio is also displayed.

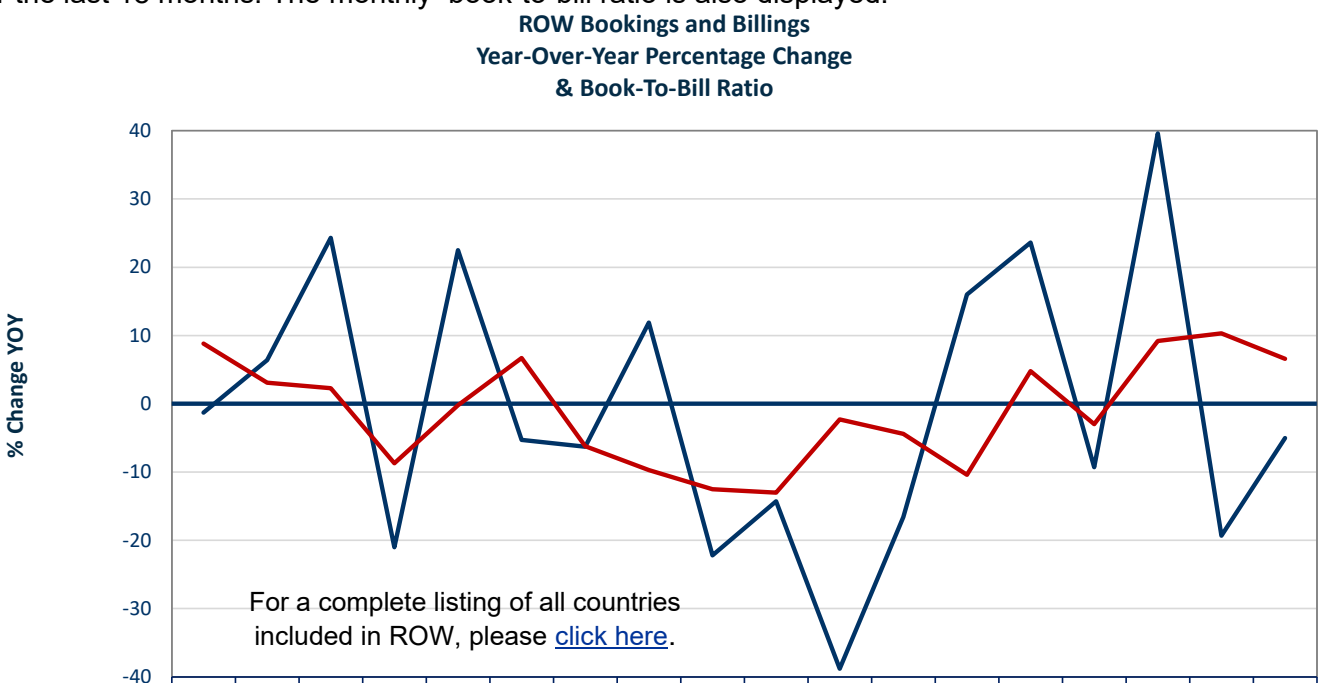


	Apr 24	May 24	Jun 24	Jul 24	Aug 24	Sep 24	Oct 24	Nov 24	Dec 24	Jan 25	Feb 25	Mar 25	Apr 25	May 25	Jun 25	Jul 25	Aug 25	Sep 25
Bookings	22.7	29.6	43.1	42.4	16.1	32.4	52.7	48.1	14.6	33.1	51.2	35.4	34.8	75.6	47.6	58.6	82.4	41.2
Billings	21.1	18.4	22.9	20.7	23.2	23.7	27.3	29.1	31.0	13.6	24.3	34.0	34.8	33.0	46.3	48.4	50.9	45.9
Billing SEQ	9.2	6.1	-2.1	2.0	0.6	-0.4	8.5	5.2	-6.3	6.9	3.2	7.9	4.5	10.2	5.8	6.5	2.9	-3.9
BTB	1.03	1.04	1.06	1.00	0.98	0.91	1.15	1.08	0.84	1.07	1.25	1.03	1.04	1.40	1.13	1.07	1.17	0.82

Asia Pacific Performance

- Year-over-year, September orders were up a strong +41.2%. Billings increased by a healthy +45.9%, after exhibiting the highest billings growth in over five years in August. Sequentially, sales decreased by -3.9%. The book-to-bill ratio was 0.82, down dramatically from 1.17 in August!
- "India's consumer price inflation eased to 1.54% in September 2025, down from 2.07% in August and below market expectations of 1.7%. This marked the lowest rate since June 2017 and fell below the Reserve Bank of India's 2% lower tolerance limit under its' inflation-targeting framework", according to Trading Economics.
- "The HSBC India Manufacturing PMI fell to 58.5 in September 2025, from August's 17-and-a-half-year high of 59.3, preliminary data showed. Despite the moderation, the index remained comfortably above the neutral 50.0 threshold and its long-run average of 54.2, signaling a still-robust expansion in the sector", according to Trading Economics.
- "South Korea's exports rose at their fastest pace in 14 months in September, blowing past expectations, as a global AI boom drove strong demand for chips, though uncertainty persisted over trade negotiations with the U.S., according to Reuters. "South Korea's seasonally adjusted unemployment rate edged down to 2.5% in September from 2.5% in August, returning to July's level, according to Trading Economics.

Rest of World: The following chart displays the year-over-year percentage change in bookings and billings for the last 18 months. The monthly book-to-bill ratio is also displayed.



	Apr 24	May 24	Jun 24	Jul 24	Aug 24	Sep 24	Oct 24	Nov 24	Dec 24	Jan 25	Feb 25	Mar 25	Apr 25	May 25	Jun 25	Jul 25	Aug 25	Sep 25
Bookings	-1.3	6.4	24.3	-21.0	22.5	-5.3	-6.3	11.9	-22.2	-14.3	-38.8	-16.6	16.0	23.6	-9.3	39.6	-19.3	-5.0
Billings	8.8	3.1	2.3	-8.7	-0.2	6.7	-6.2	-9.7	-12.5	-13.0	-2.3	-4.4	-10.4	4.8	-3.0	9.2	10.3	6.6
Billing SEQ	-1.1	8.8	-5.1	-8.2	10.6	-0.5	-10.1	4.5	-11.4	-5.6	32.8	-10.0	-8.8	34.8	-15.1	1.4	19.5	-4.1
BTB	0.96	0.99	1.07	0.88	1.08	0.87	1.03	1.05	0.97	1.07	0.88	0.84	1.23	1.19	1.06	1.02	0.84	0.72

Rest of World Performance

- Orders decreased -5.0% in September. This means in the last 12 months, sales have declined eight of those 12 months. Billings increased by +6.6% year-over-year. Sequentially, sales decreased by -4.1%. The book-to-bill ratio was 0.72, the lowest book-to-bill in well over a year.
- "The Consumer Price Index in Brazil increased to 7359.06 points in September from 7323.91 points in August of 2025. Brazil's annual inflation rate edged up to 5.17% in September 2025 from 5.13% in August, slightly below market expectations of 5.22%, according to Trading Economics.
- "The S&P Global Brazil Manufacturing PMI fell to 46.5 in September 2025 from 47.7 in August, marking the sharpest deterioration in operating conditions in 29 months. The sector posted its worst quarterly performance since Q2 2023, with new orders, output, and input purchases declining at the fastest pace since April 2023, according to Trading Economics. Also, "Brazil's unemployment rate remained at 5.6% in the August 2025 moving quarter, matching the lowest level since the series began in 2012."
- "The seasonally adjusted South African Purchasing Managers' Index (PMI) was 52.2 in September 2025, rising from 49.5 in August 2025, which indicates a return to manufacturing sector expansion. This was the highest reading since October of the previous year, driven by stronger domestic demand that helped offset global economic pressures", according to Trading Economics.

Regional Summary Snapshot

The following table shows a snapshot of the performance of each region. The table displays the latest metric available, and the trend of the metric compared to prior months/quarters.

	North America	Europe	Japan	China	Asia Pacific	ROW
GDP Growth YOY	2.0% Slower	0.1% Steady	2.2% Up	4.8% Down	N/A	N/A
Industrial Production Growth	0.1% Down	1.1% Down	-1.5% Down	6.5% Up	N/A	N/A
Manufacturing PMI*	52.0 Down	49.8 Down	48.5 Down	49.8 Up	N/A	N/A
Inflation Rate	3.0% Up	2.2% Up	2.9% Up	-0.3% Down	N/A	N/A
Unemployment Rate	4.3% Up	5.9% Stable	2.6% Up	5.2% Down	N/A	N/A
Retail Sales Growth YOY	5.42% Up	3.1% Up	0.5% Down	3.0% Down	N/A	N/A
September Connector Sales	22.5%	12.6%	2.6%	26.1%	45.9%	6.6%
YTD Connector Sales	7.7%	6.2%	4.3%	22.0%	37.3%	0.0%
September Connector Orders	24.2%	9.8%	-7.2%	33.1%	41.2%	-5.0%
YTD Connector Orders	9.1%	9.7%	-6.6%	17.8%	52.1%	-6.1%

* Purchasing Manager Index - Below 50 is contracting factory activity

Key Take Aways:

- Manufacturing PMI hoovered between 49 and 52 in all regions, but Japan, where it dipped to 48.5. Retail sales remained up in North America and Europe and down Japan and China.
- Although still high, unemployment was flat in Europe, and up in Japan and North America. The only region where it declined was the China region.
- Once again in September, year-over-year connector sales were up double-digits in four of the six regions with the greatest growth in the Asia Pacific region, where year-over-year connector sales were up +45.9%. Of the two regions, exhibiting single-digit growth, the ROW region had the highest single-digit growth, up +6.6%, while the Japanese region had growth of +2.6%.

The Industry Backlog Is 9.9 Weeks

The industry shipped $2,280 million per week in September. Orders are up +14.5% year-to-date, moving the order backlog up to $22,601 million.

The following table displays the order backlog at the end of September.

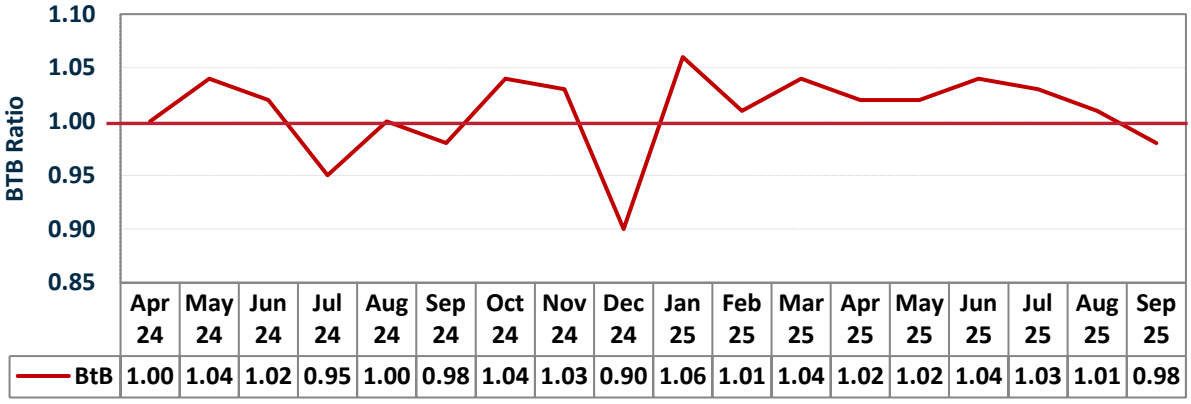
Industry Backlog

	Full Year 2024	Sept 2025
BtB Ratio	1.00	0.98
Begininning Backlog	$21,017	$21,287
YTD Bookings	$86,592	$74,552
YTD Billings	$86,322	$78,238
Ending Backlog	$21,287	$22,601
Backlog in Weeks	12.6	9.9

$ Millions

The book-to-bill (BtB) ratio was 0.98 in September. Backlog in weeks was 10.3 in August but dropped to 9.9 weeks in September. This is because the industry shipped $576 million more than booked in September. The following displays the trend of book-to-bill ratios since April of 2024.

Connector Industry Book-to-Bill



	Apr 24	May 24	Jun 24	Jul 24	Aug 24	Sep 24	Oct 24	Nov 24	Dec 24	Jan 25	Feb 25	Mar 25	Apr 25	May 25	Jun 25	Jul 25	Aug 25	Sep 25
BtB	1.00	1.04	1.02	0.95	1.00	0.98	1.04	1.03	0.90	1.06	1.01	1.04	1.02	1.02	1.04	1.03	1.01	0.98

The backlog has increased by a $1,314 million during the first nine months of 2025. See the table below.

Change in Backlog

2024 Ending Backlog	$21,287
2025 August Ending Backlog	$22,601
Backlog Growth	$1,314

$ Millions

Currency Fluctuations Reduce Performance between USD and Local Currency

The dollar has been fluctuating against the euro, the yen, and the yuan. The following table measures the impact for September 2024 versus September 2025 and shows results for these three currencies.

Local Currency to One USD
2024 YTD versus 2025 YTD

Currency	2024	2025	% Change
Euro	0.9003	0.8524	5.6%
Yuan	7.0760	7.1252	-0.7%
Yen	143.1461	147.9469	-3.2%

Europe, China, and Japan account for approximately 60% of world connector sales. Currency fluctuation against the US dollar can have a significant impact on our reporting of sales performance in US dollars.

The following table shows August YOY performance by region in US dollars and local currencies.

Industry Sales Performance
August 2025
USD-vs-Local Currencies

Region	U.S.$	Local Currency
North America	22.5%	22.5%
Europe	12.6%	5.6%
Japan	2.6%	-3.2%
China	26.1%	-0.7%
Asia Pacific	45.9%	45.9%
ROW	6.6%	6.6%
World	**21.6%**	**0.7%**

Connector sales in September of 2025 increased +0.7% when measured in local currencies, versus an increase of +21.6% in US dollars.

2025 Connector Sales & Orders

Orders and sales have achieved growth every month in 2025. Orders achieved double-digit growth in six of the nine months. Sales have achieved double-digit growth in the last six months.

As the table below shows, year-to-date, orders are up +14.5% and sales are up +13.2%.

2025 Orders and Sales
Growth in 2025 by Month
Percentage Change

Month	Orders	Sales
January	7.3%	2.3%
February	5.5%	7.9%
March	12.6%	7.2%
April	11.6%	11.4%
May	9.6%	16.5%
June	15.6%	17.1%
July	32.0%	18.1%
August	16.8%	16.2%
September	21.8%	21.6%
Year-to-Date	**14.5%**	**13.2%**

Note: The numbers may vary slightly from those previously published in 2025 Bishop Reports because of adjustments from participating companies.

The connector industry is achieving excellent business results, and the trend is up.

- All regions achieved growth with Asia Pacific leading the way up +37.3%. China sales were up +22.0%.
- Artificial Intelligence (AI) is driving sales in networking and IT/data. In some areas, sales are up over 100%.
- Auto, transportation, particularly commercial air, military and aerospace and industrial are all achieving sales growth.

These achievements are the result of good GDP growth worldwide. We are confident the connector industry will have an exceptionally good fourth quarter. We expect sales to top double digits.

Quarterly Analysis

The connector industry achieved sales in 3Q25 of $26,701, up +19.5% in US dollars compared to 3Q24. We anticipate 4Q25 to be up +9.6% over 4Q24, for total quarter sales of $23,895, and total 2025 sales of $97,133 million. It is important to note that 4Q25 sales and total 2025 sales are higher than our initial 2025 forecast and are based on projected average sales.

The following table shows industry sales by quarter for 2023, 2024, and 2025.

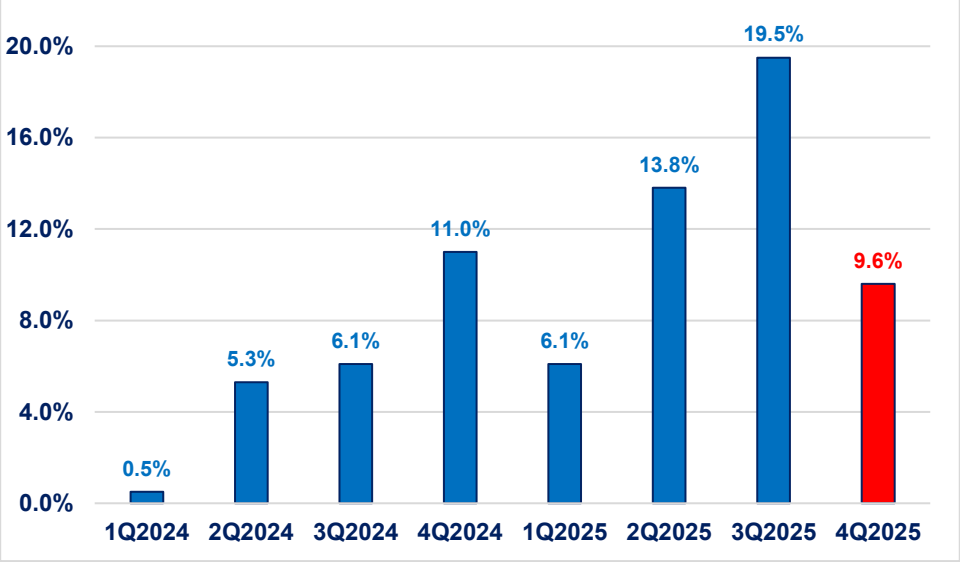
Connector Industry Quarterly Sales Results/Forecast
2023, 2025, and 2025

Quarter	2023 Actual	2024 Actual	YOY Change	2025 Actual	YOY Change
1Q	$21,179	$21,281	0.5%	$22,587	6.1%
2Q	$19,981	$21,042	5.3%	$23,950	13.8%
3Q	$21,060	$22,353	6.1%	$26,701	19.5%
4Q	$19,634	$21,802	11.0%	$23,895	9.6%
Total	**$81,854**	**$86,478**	**5.6%**	**$97,133***	**12.3%**

$ Millions, Red=Forecast

*2025 total has been updated to reflect average sales based on actual sales of the first three quarter sales.

Quarterly Sales by Percent Change
2024 through 2025



2025 Outlook: Historical Analysis

Over the past 15 years (2010-2024), sales through September averaged 75.4% of full-year sales. We have shipped $73,238 million through September. Should history repeat, the industry will ship $97,133 million in 2025. This is a +12.3% increase over 2024 sales of $86,478 million.

Since actual year-to-date sales are up +13.2%, the industry will likely outperform the historical average. Additionally, connector demand is trending up, making it likely that full year sales will exceed +13.2%.

The following table provides an analysis of industry sales history. This analytical calculation provides a range of possible sales outcomes.

	% Full Year Sales	YTD Sept Actual Sales	Projected 2025 Sales	% YoY Growth
Least	70.3%	$73,238	$104,179	20.5%
Average	75.4%	$73,238	$97,133	12.3%
At Most	77.9%	$73,238	$94,015	8.7%

As previously noted, actual sales are up 13.2% through September. Considering the connector demand trend is up, full year 2025 sales growth could exceed the +13.2% threshold. However, historically 4Q sales are slightly less than second and third quarter sales, which would result in total 2025 sales being below the +13.2% threshold. Based on this, we are going to estimate year-over-year growth of 12.3%, resulting in total 2025 sales of $97,133 million.

Significant Events

October 2025 News

North American EMS Industry Shipments Down 1.4 Percent in August

The Global Electronics Association announced the August 2025 findings from its North American Electronics Manufacturing Services (EMS) Statistical Program. The book-to-bill ratio stands at 1.26.

Total North American EMS shipments in August 2025 were down 1.4% compared to the same month last year, yet compared to the preceding month, August shipments were up 3.6%. August's year-to-date (YTD) shipments decreased by 0.7% year-over-year (YOY).

EMS bookings in August decreased 4.3% year-over-year and increased 5.6% from the previous month. August's YTD bookings increased by 1.2% compared to the same period last year.

"The EMS sector is seeing solid momentum as both supply and customer inventories continue to normalize," said Dr. Shawn DuBravac, chief economist, Global Electronics Association. "This shift puts the industry on steadier ground and positions it well for the next phase of growth."

EMS bookings point to a strong demand environment. The latest month shows an even tighter market, with bookings outpacing shipments, suggesting accelerating momentum and high near-term capacity utilization. Shipment volumes are trending higher on a rolling basis, reflecting gradual supply-side normalization as manufacturers convert backlog into delivered product. Orders softened on a three-month view, likely a timing effect after earlier strength, and the elevated one-month book-to-bill indicates this pullback is transitory rather than structural. Output remains slightly below last year's pace, so the recovery is not yet complete, but as supply chains stabilize and labor availability improves, shipments should continue to converge with demand. Year-to-date, orders are modestly ahead of last year, signaling resilient end-market demand, and positive YTD bookings alongside sub-par shipments imply backlog support for production in the coming quarters.

North American PCB Industry Sales Up 12.8 Percent in August

The Global Electronics Association announced the August 2025 findings from its North American Printed Circuit Board (PCB) Statistical Program. The book-to-bill ratio stands at 0.98.

Total North American PCB shipments in August 2025were up 12.8% compared to the same month last year and up 3.3% from July. August's year-to-date (YTD) shipments increased by 8.3% year-over-year (YOY).

PCB bookings in August were down 4.1% compared to the same month last year and were down 5.2% compared to July. August's YTD bookings increased 14.5% compared to the same period last year.

"The North American PCB sector is showing some near-term softness, with bookings trailing shipments, but the broader trajectory remains positive," said Dr. Shawn DuBravac, chief economist, Global Electronics Association. "While short-term book-to-bill ratios point to a cooling phase, the underlying fundamentals remain constructive for the quarters ahead."

North American PCB indicators point to near-term softness against a stronger year-to-date backdrop. The three-month book-to-bill at 0.98 and the 1-month at 0.88 show bookings trailing shipments, which implies easing capacity utilization and limited near-term upside. Rolling trends confirm the pause, with shipments down 1.9% and bookings down 3.6% on a 3-month moving-average basis. Even so, the year-to-date picture

remains solid, with shipments up 8.3% and bookings up 14.5%, indicating demand is still running ahead of last year and backlog support persists. Netting these signals, the sector is digesting recent strength in the short run, while underlying demand remains constructive for the coming quarters.

PCB Industry to Expand This Year

The production value of Taiwan's printed circuit board (PCB) industry is expected to expand 12 percent annually this year to NT$915.7 billion (US$30.11 billion), driven primarily by strong demand for artificial intelligence (AI) servers, the Taiwan Printed Circuit Association said yesterday.

The latest growth forecast outpaced the 4.6 percent year-on-year increase the association estimated in March, as the industry's production value in the second quarter jumped 14.4 percent to a record NT$218.2 billion on the back of strong demand for high-end products, the association said in a statement.

That came as integrated circuit (IC) substrates outgrew all other types of PCBs and recorded an annual gain of 20.6 percent in production value during the June quarter, the association said.

Growing demand for IC substrates for memory chips, graphic cards, AI chips and switch ICs amid higher shipments of smartphones, AI servers and PCs were the main factors, it said.

With strong growth momentum, the industry's production value in the second half of the year is projected to climb 10.7 percent annually to NT$492.1 billion, thanks to wider adoption of AI applications and the rise of emerging technologies such as satellite communications, the association said.

"For the whole year, AI servers will be the main growth engine, boosting the overall PCB shipments to surge 82.8 percent year-on-year," it said. "The specification upgrade is to stimulate demand."

Additionally, robust demand for high-performance computing devices, satellites and automotive electronics would also help boost the industry's growth this year, the association said.

However, the booming AI application demand is causing a supply bottleneck for critical PCB materials, including high-performance glass fiber and high-volumetric-low-profile (HVLP) copper clad laminates (CCLs), it said, adding that the situation could disrupt AI server shipments.

While new AI servers powered by Nvidia Corp's B300 chips would significantly boost demand for HVLP CCLs, it is likely to trigger concern over supply constraints of such CCLs in the midterm, the association said.

As Taiwan is heavily reliant on Japanese suppliers for those critical raw materials, AI servers are facing the risk of production disruptions, it said.

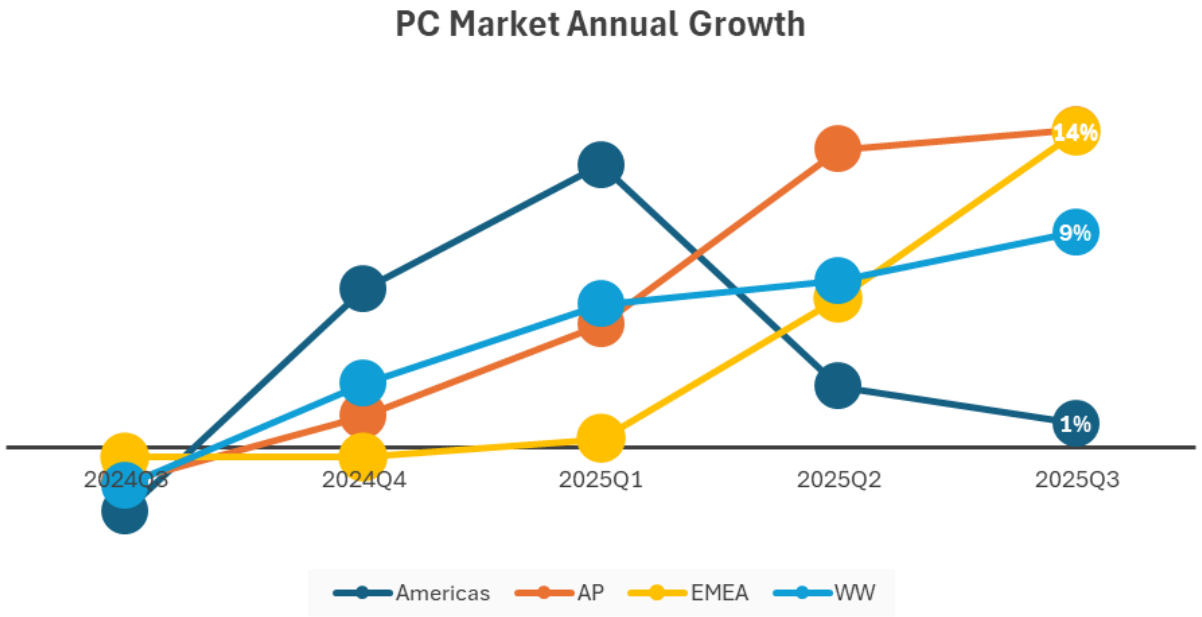
The association has activated a special project to encourage local PCB companies to tap into high-value raw material areas, with an aim to develop an extensive PCB supply chain in Taiwan, it added.

Last year, the PCB industry's production value expanded 6.1 percent to NT$816.8 billion, after suffering a recession in 2023, the association said.

PC Shipments Accelerate in Q3 Signaling Steady Refresh of Existing Installed Base

PC shipments during the third quarter of 2025 grew 9.4% from the prior year, with global volumes reaching 75.8 million units, according to preliminary results from the International Data Corporation (IDC) Worldwide Quarterly Personal Computing Device Tracker.

"While the entire market is continuing on a very strong year, fueled by Windows 11 transition and the need to replace an ageing installed base, the results by regions are telling different stories," said Jean Philippe Bouchard, research vice-president with IDC's Worldwide Mobile Device Trackers. "In particular, the North American market continues to be impacted by the US import tariffs shock and by macroeconomic uncertainties. While existent, the demand for newer PCs ready for Windows 11 is likely to push well into 2026."



The Asia/Pacific (including Japan and China) PC market recorded double-digit growth.

"The demand was driven largely by Japan's hardware refresh linked to Windows 10 end-of-support and the GIGA education project," said Maciek Gornicki, senior research manager with IDC's Worldwide Device Trackers. "Growth outside Japan was more modest — hindered by macroeconomic and political challenges and slow Windows 11 adoption — though there were pockets of opportunity from hardware refreshes of devices purchased during and before the COVID-19 pandemic."

Worldwide Smartphone Market Grows 2.6% in Q3 2025 as Upgrades Accelerate, Driven by New Innovative Products

According to preliminary data from the International Data Corporation (IDC) Worldwide Quarterly Mobile Phone Tracker, global smartphone shipments increased 2.6% year-over-year (YoY) to 322.7 million units in the third quarter of 2025 (3Q25). The smartphone market continued its recovery, fueled by the premium segment as consumers upgraded to the latest devices, attracted by innovative form factors and more affordable AI-enabled smartphones.

"The smartphone industry continues its upward trajectory, posting solid growth — a remarkable achievement given persistent economic uncertainty and tumultuous tariff dynamics," said Nabila Popal, senior research director for Worldwide Client Devices, IDC. "OEMs have mastered the art of innovation not only in hardware and software to entice upgrades but also in removing purchase friction. They have flawlessly combined cutting-edge devices with innovative financing models and aggressive trade-in programs that make the upgrading decision a "no brainer" for consumers."

“Despite economic uncertainty, the smartphone market showed resilience. Apple and Samsung posted strong results as their latest devices encouraged consumers to upgrade in the premium segment, while new, affordable AI-enabled smartphones also drove high upgrades in more affordable price categories,” said Francisco Jeronimo, vice president, Client Devices, IDC. “Apple delivered its best results ever in a July quarter, while Samsung achieved its strongest July-quarter growth on record. Demand for Apple’s new iPhone 17 lineup was robust, with pre-orders surpassing those of the previous generation. At the same time, Samsung’s Galaxy Z Fold 7 and Galaxy Z Flip 7 outperformed all earlier foldable models, creating renewed momentum for the foldables segment.”

Beyond the top two vendors, Xiaomi, Transsion, and vivo also recorded notable growth during the quarter. Xiaomi consolidated its recovery in Europe and Latin America, leveraging its Redmi Note and Poco series. Transsion continued to expand rapidly across North and East Africa, benefiting from strong distribution networks and a competitive portfolio in the sub-$200 segment. Vivo regained share in several emerging markets, supported by refreshed midrange devices with AI-enhanced imaging features and aggressive online promotions.

"Looking ahead, IDC maintains a positive outlook for 2025, anticipating that market momentum will continue through the final quarter of the year," said Anthony Scarsella, research director for Mobile Phones at IDC. "The accelerated demand for the latest AI-enabled products is expected to lead to a strong finish for 2025, driven by aggressive pricing promotions and robust product portfolios from leading vendors.”

Top 5 Companies, Worldwide Smartphone Shipments, Market Share, and Year-Over-Year Growth, Q3 2025 (Preliminary results, shipments in millions of units)

Company	3Q25 Shipments	3Q25 Market Share	3Q24 Shipments	3Q24 Market Share	Year-Over-Year Change
1. Samsung	61.4	19.0%	57.7	18.4%	6.3%
2. Apple	58.6	18.2%	57.0	18.1%	2.9%
3. Xiaomi	43.5	13.5%	42.8	13.6%	1.8%
4. Transsion	29.2	9.0%	25.7	8.2%	13.6%
5. vivo	28.8	8.9%	27.0	8.6%	6.9%
Others	101.2	31.4%	104.5	33.2%	-3.2%
Total	**322.7**	**100%**	**314.6**	**100%**	**2.6%**

Source: IDC Worldwide Quarterly Mobile Phone Tracker, October 13, 2025

AI Infrastructure and Devices Drive Demand

Solid mobile phones and PCs shipment data over the first half of 2025 reported by vendors support the devices market’s strong growth projection for 2025, with spending expected to reach $783 billion in 2025, an increase of over 8.4% from the previous year. Spending on devices in 2026 is expected to be strong, but a bit slower.

“This growth in 2025 is mainly driven by stronger-than-expected spending on mobile phones,” said Lovelock. “The availability of AI devices has also boosted overall spending by more than $30 billion. With the

replacement cycle unchanged, the stronger performance in 2025 will result in a lower relative growth rate for 2026, as demand has been pulled forward.

“In other areas, such as data center systems, the race to build AI infrastructure has further increased demand and growth expectations for data center servers, especially AI-optimized server racks. However, server demand growth remains limited by supply constraints,” continued Lovelock.

Gartner’s IT spending forecast methodology relies heavily on rigorous analysis of the sales by over a thousand vendors across the entire range of IT products and services. Gartner uses primary research techniques, complemented by secondary research sources, to build a comprehensive database of market size data on which to base its forecast.

Gartner Forecasts Worldwide IT Spending to Grow 9.8% in 2026, Exceeding $6 Trillion For the First Time

Worldwide IT spending is expected to total $6.08 trillion in 2026, an increase of 9.8% from 2025, according to the latest forecast by Gartner, Inc., a business and technology insights company.

Gartner analysts are discussing the trends that are impacting the IT market during Gartner IT Symposium/Xpo, taking place here through Thursday.

Table 1. Worldwide IT Spending Forecast (Millions of U.S. Dollars)

	2025 Spending	2025 Growth (%)	2026 Spending	2026 Growth (%)
Data Center Systems	489,451	46.8	582,446	19
Devices	783,157	8.4	836,275	6.8
Software	1,244,308	11.9	1,433,037	15.2
IT Services	1,719,340	6.5	1,869,269	8.7
Communications Services	1,304,165	3.8	1,363,058	4.5
Overall IT	5,540,421	10	6,084,085	9.8

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Dell Stock Pops as Company Ups Long Term Revenue Growth Expectations

Shares of Dell Technologies rose 3.5% after the company increased its long-term revenue and profit growth expectations in a meeting with analysts.

The computer maker said it now expects annual revenue to expand between 7% and 9%, an increase from its prior forecast of 3% to 4%.

For the full year, it now expects diluted earnings per share to grow at least 15%, compared with its previous expectations for growth of 8% or higher.

Dell said it was raising its guidance as it capitalizes on “the unprecedented pace of change in technology,” particularly in artificial intelligence.

Dell also reiterated its third-quarter and fiscal 2026 forecasts. The company said in its latest earnings report in August that it plans to ship $20 billion of AI servers in its fiscal 2026, double what it sold last year.

Dell is one of Nvidia’s key customers. Dell buys chips from the AI leader and builds computers around them, which it sells to end-users such as CoreWeave, a cloud service, and Elon Musk’s AI startup xAI.

Wistron Reports 109.94% Revenue Surge

Wistron Corp reported a 109.94 percent year-on-year surge in revenue for last month, driven by strong demand for artificial intelligence (AI) servers, with the momentum expected to extend into this quarter.

Revenue last month was NT$203.44 billion (US$6.66 billion), a record for September, while third-quarter revenue was NT$567.8 billion, a 108.3 percent increase from the same quarter last year, the company said.

Revenue in the first nine months of the year was NT$1.47 trillion, up 94.87 percent from the same period last year and also a record for the period, it said.

The company remains optimistic about AI server revenue growth in this quarter, a Wistron official told the Taipei Times by telephone. Server sales accounted for about 70 percent of Wistron’s total revenue in the second quarter, with most of it from AI servers, the company said in August. While the company was in a product transition between servers powered by Nvidia Corp’s GB200 and GB300 chips last quarter, demand was high for both models, the official said.

Wistron shipped 2.2 million notebook computers last month. It shipped 6.4 million units in the third quarter, up 8.47 percent sequentially and 23.07 percent annually. Notebook shipments this quarter would dip slightly from last quarter, the company said.

Wistron shipped 900,000 desktop computers and 900,000 displays last month, bringing third-quarter totals to 2.45 million units for both items, a 3.9 percent sequential decline in desktops and an 11.36 percent increase in displays. This quarter, desktop and display shipments are expected rise on an annual and quarterly basis, the company said.

Separately, Quanta Computer Inc reported that revenue last month rose 18.7 percent year-on-year, also driven by demand for its AI servers and notebooks. Revenue last month was NT$184.11 billion, a record for September, Quanta said. Third-quarter revenue was NT$495.26 billion, a 16.65 percent increase from a year earlier, it said. Revenue in the first nine months totaled NT$1.49 trillion, up 49.49 percent from the same period last year, it said. The company in August said that AI servers accounted for more than 60 percent of

its total server revenue in the first half of this year. The percentage is likely to increase further this quarter, a Quanta official told the Taipei Times yesterday. Growth momentum this quarter is expected to continue to be from servers powered by Nvidia's GB-series chips, with GB200 models remaining the main growth driver this year, the Quanta official said. Shipments of new-generation AI servers powered by Nvidia's GB300 chips underwent pilot runs at the end of last quarter, they said. The company's guidance for AI server revenue to grow by a triple-digit percentage from a year earlier and account for 70 percent of total server revenue this year remains unchanged, they added.

Quanta shipped 4.6 million notebook computers last month, the company said.

It shipped 12.7 million notebooks in the third quarter, up 4.95 percent sequentially and 0.79 percent annually, it said.

While the company remains uncertain whether front-loading momentum would extend into this quarter, it maintains its forecast for notebook shipments for the whole of this year to be evenly split between the first and second halves, it said, adding that growth from last year would be by a single-digit percentage.

Hon Hai September Sales Hit Record, Shares End Up

Shares of Taiwan-based manufacturing giant Hon Hai Precision Industry Co. closed higher after its September revenue hit a new monthly high on the back of growing global demand for artificial intelligence applications, dealers said.

However, gains in the AI server maker were capped toward the end of the session as buying shifted to its counterparts amid rapid rotational buying among AI-related hardware stocks, the dealers added.

After the market closed, shares of Hon Hai, the second-largest cap stock in the local market, rose 0.88 percent to end at NT$228.50 (US$7.52) on Tuesday, coming off the day's high of NT$231.50 on the Taiwan Stock Exchange.

"Hon Hai's gains largely reflected its strong September sales, although its momentum was compromised to some extent as buying rotated to other AI server makers such as Quanta Computer Inc.," Cathay Futures Consultant analyst Tsai Ming-han said. Quanta Computer rose 2.83 percent to end at NT$308.50.

Hon Hai, also known globally as Foxconn, reported that it had posted a record NT$837.1 billion in consolidated sales in September, up 38.01 percent from a month earlier and 14.19 percent from a year earlier.

In the third quarter, Hon Hai's consolidated sales also hit a quarterly record of NT$2.06 trillion, up 14.47 percent from the previous quarter and 10.99 percent from a year earlier.

In the first nine months of this year, Hon Hai generated about NT$5.50 trillion in consolidated sales, up 16.27 percent from a year earlier.

Month on month, Hon Hai saw strong growth in its cloud and networking device and computer electronics sales due to an increase in AI server rack shipments. Revenue in its computer electronics division also rose sharply as buyers built up inventories, while revenue from computing and smart consumer electronics products remained flat.

Year on year, revenue from Hon Hai's smart consumer electronics, electronic components, and cloud and networking divisions rose significantly, while the company's computing division reported flat sales growth.

Market analysts said iPhone assembler Hon Hai benefited from the debut of the latest iPhone 17 series in September.

Looking ahead, Hon Hai said fourth-quarter sales are expected to grow from the third quarter due to peak-season effects and continued strong demand for AI applications.

Nearly All US Growth in 2025 Tied to AI and Data Center-Related Capital Spending

Big tech data center spending nears $400 billion after fourfold surge.

US economic growth in 2025 is being driven by an unprecedented surge in AI-related infrastructure spending – an inversion of the forces that have long powered expansion. The boom underscores how deeply artificial intelligence is reshaping the real economy, and it's forcing economists to ask whether America's new growth model is sustainable, or dangerously narrow.

Investment in data centers and information processing technology has taken center stage in the growth of the US economy this year, setting new benchmarks and prompting economists to reconsider long-held assumptions about what drives expansion.

Recent analysis by Harvard economist Jason Furman found that excluding spending on technology-related infrastructure, annualized GDP growth in the first half of 2025 would have been just 0.1 percent – underscoring the extraordinary influence of digital infrastructure investment on overall economic performance.

China Now Home to Half the World's Industrial Robots as the US Falls Further Behind

China installed 300,000 industrial robots last year – nine times more than the US.

The increasing number of highly advanced industrial robots appearing in US factories has long brought concerns about human job losses. It's certainly a worry for American workers, and it's a situation mirrored in China, which is home to around half of the world's 4.6 million operational robots. It's also a stark indication of how quickly the Asian nation is outpacing its US rival in this area.

The speed at which industrial robots are being deployed isn't slowing down. In 2024, 542,000 were deployed globally – the second-highest annual total on record - marking the fourth year in a row that the figure exceeded half a million, writes the International Federation of Robotics (IFR). The report also notes that more than twice as many of these robots were deployed in 2024 compared to 10 years ago.

The majority of last year's robot deployments – 54% – came from China. Just under 300,000 of these machines were deployed in the country in 2024. For comparison, the US installed 34,000, or just over 10% of China's total, a decline of 9%. Japan (4%), Germany (5%) and South Korea (3%) also saw their total installations drop year-on-year.

China is the world's largest industrial robot market: its operational robot stock exceeded the 2 million mark a year ago. That's almost half of the world's 4.66 million industrial robots.

China's seemingly insurmountable lead in this area comes as little surprise. Dominating the robotics industry is an aspect of the Made in China 2025 campaign. Launched a decade ago, the movement aims to lessen the nation's reliance on imported goods. Incentives and help from Beijing in the form of investments, grants, and low-interest loans for businesses have played a major role in the efforts.

According to a New York Times article from April, state-controlled banks lent an extra $1.9 trillion to industrial borrowers in China over the past four years. New factories are being built all the time while older ones are being upgraded with robots and automation.

Another reason why China is surging ahead in this field is its abundance of skilled programmers and electricians who can install the robots. While demand for skilled electricians is entering a boom cycle in the US, there remains a shortage of programmers.

The IFR predicts that Chinese manufacturing will increase 10% every year until 2028, driving demand for more of these industrial robots.

Intel Turns to Apple for Potential Investment as it Looks to Rebuild Chip Business

Intel has reportedly held early talks with Apple about a possible investment. The struggling chipmaker is seeking to stabilize its business with new backers following recent partnerships with other rivals and overseas investors. Anonymous sources told Bloomberg that the discussions remain preliminary and may not result in a deal.

Intel approached Apple after Nvidia committed to a $5 billion investment to collaborate on semiconductors for data centers and personal computers. SoftBank also offered a $2 billion cash infusion in August. The sources claim Intel has contacted several other companies in search of similar arrangements.

Intel has been under pressure to restore its standing in the chip industry after years of losing ground to competitors. Once the world's dominant processor maker, the Santa Clara-based company has struggled to keep pace with Nvidia, now the market leader in artificial intelligence hardware, and AMD, which has steadily gained share in servers and personal computers.

A potential deal with Apple would carry symbolic weight, though it seems unlikely the iPhone maker would reverse its decision to transition away from Intel processors in Macs. Apple designs its own chips, manufactured by TSMC, and has not indicated any plans to return to Intel architecture.

Intel's latest efforts are unfolding with financial and political backing from Washington. In August, the Trump administration brokered an unusual deal granting the US government a 10-percent stake in the company, framing Intel as essential to rebuilding domestic semiconductor production capacity.

Intel in Talks to Produce AMD Chips in its Factories

Intel has opened early discussions with longtime rival AMD about producing some of AMD's chips in its factories, people familiar with the matter told Semafor. Such a deal would mark fresh validation for Intel's struggling foundry business.

The talks remain preliminary, and it is unclear whether AMD would shift a significant portion of its manufacturing to Intel or whether any agreement would include a direct investment from AMD. Sources cautioned that no final decision has been made and that discussions could still fail to produce a deal. Both companies declined to comment.

Reports of the talks come after a series of developments that have strengthened Intel's position following months of weak performance in cutting-edge chips.
In the past seven weeks, the company has secured high-profile backers: the US government took a 9.9% ownership stake, SoftBank acquired $2 billion in stock, and Nvidia invested $5 billion while also agreeing to co-develop chips with Intel. Apple has also reportedly been in discussions with Intel about potential support.

AMD currently relies primarily on TSMC to manufacture its processors and graphics chips. Intel does not yet have the capability to produce AMD's most advanced and profitable products, but it could manufacture less demanding chips.

Such an arrangement could also serve AMD's political interests. Earlier this year, Washington restricted AMD's ability to export chips to China – rules that were later partially loosened by the Trump administration. Maintaining close alignment with US manufacturing policy could be advantageous as the White House continues to tie industrial policy with national security.

Intel's factories still lag behind TSMC's in cutting-edge process technology, but the Trump administration has pressed major US companies to bring at least part of their manufacturing to domestic facilities. For companies like AMD, striking a manufacturing deal with Intel could ease political pressure while preserving TSMC relationships for higher-end production.

Intel has spent much of this year courting potential customers and investors as it seeks to establish its foundry unit as a credible rival to TSMC and Samsung.

Once the dominant player in personal computing chips, Intel has fallen behind in the AI race led by Nvidia. Securing AMD as a customer would represent a major breakthrough for Intel's manufacturing business, transforming a historic rivalry into a strategic partnership.

US Commerce Head Lutnick Wants Taiwan to Help America Make 50% of its Chips Locally

The Trump administration is pushing Taipei to shift investment and chip production to the U.S. so that half of America's chips are manufactured domestically, in a move that could have implications for Taiwan's national defense.

Washington has held discussions with Taipei about the "50-50" split in semiconductor production, which would significantly reduce American dependence on Taiwan, U.S. Secretary of Commerce Howard Lutnick told NewsNation in an interview released over the weekend.

Taiwan is said to produce over 90% of the world's advanced semiconductors, which, according to Lutnick, is cause for concern due to the island nation's distance from the U.S. and proximity to China.

"My objective, and this administration's objective, is to get chip manufacturing significantly onshored — we need to make our own chips," Lutnick said. "The idea that I pitched [Taiwan] was, let's get to 50-50. We're producing half, and you're producing half."

Lutnick's goal is to reach about 40% domestic semiconductor production by the end of U.S. President Donald Trump's current term, which would take northwards of $500 billion in local investments, he said.

Taiwan's stronghold on chip production is thanks to Taiwan Semiconductor Manufacturing Co., the world's largest and most advanced contract chipmaker, which handles production for American tech heavyweights like Nvidia and Apple.

Taiwan's critical position in global chips production is believed to have assured the island nation's defense against direct military action from China, often referred to as the "Silicon Shield" theory.

However, in his NewsNation interview, Lutnick downplayed the “Silicon Shield,” and argued that Taiwan would be safer with more balanced chip production between the U.S. and Taiwan.

“My argument to them was, well, if you have 95% [chip production], how am I going to get it to protect you? You’re going to put it on a plane? You’re going to put it on a boat?” Lutnick said. Under the 50-50 plan, the U.S. would still be “fundamentally reliant” on Taiwan, but would have the capacity to “do what we need to do, if we need to do it,” he added.

Beijing views the democratically governed island of Taiwan as its own territory and has vowed to reclaim it by force if necessary. Taipei’s current ruling party has rejected and pushed back against such claims.

This year, the Chinese military has held a number of large-scale exercises off the coast of Taiwan as it tests its military capabilities. During one of China’s military drills in April, Washington reaffirmed its commitment to supporting Taiwan.

More in return for defense

Lutnick’s statements on the News Nation interview aligned with past comments from Trump, suggesting that the U.S. should get more in return for its defense of the island nation against China.

Last year, then-presidential candidate Trump had said in an interview that Taiwan should pay the U.S. for defense and accused the country of “stealing” the United States’ chip business.

The U.S. was once a leader in the global semiconductor market but has lost market share due to industry shifts and the emergence of Asian juggernauts like TSMC and Samsung.

However, Washington has been working to reverse that trend across multiple administrations.

TSMC has been building manufacturing facilities in the U.S. since 2020 and has continued to ramp up its investments in the country. It announced intentions to invest an additional $100 billion in March, bringing its total planned investment to $165 billion.

The Trump administration recently proposed 100% tariffs on semiconductors but said that companies investing in the U.S. would be exempt. The U.S. and Taiwan also remain in trade negotiations that are likely to impact tariff rates for Taiwanese businesses.

Apple’s Stock Turns Positive for the Year After iPhone 17 Launch

Apple shares rallied since the company released new iPhones, and the stock has now erased its losses for 2025.

Apple released new iPhone, Apple Watch, and AirPods models. The new iPhones, especially the midrange $999 iPhone Air, mark the first significant redesign in years, and analysts say early wait times suggest demand is strong.

The company is also seeing strong demand in China, a key market for Apple, analysts say, based on pre-order times.

Apple remains the laggard among the biggest tech companies so far in 2025, partially because it’s spending far less on AI chips and data centers than its rivals. The company has also delayed a key improvement to

its Siri assistant until 2026, raising concerns that it's falling behind companies such as Google and Microsoft in integrating the technology into its products.

But Apple's new products include several AI features, such as its new AirPods Pro 3 headphones automatically translating spoken text, and its new Apple Watch models using machine learning to warn users about high blood pressure risks.

Drones are a Key Part of the Smart Farming Revolution

The world's population continues to increase year on year, but the amount of arable land available for farming isn't. Over the last few decades, per capita food production has been decreasing, and the effects of climate change have been exacerbating the adverse impact on crop productivity, resulting in poorer harvests.

When these factors are compounded by a decrease in the number of farmers worldwide (and an increasing average age of farmers), technological innovations are required to improve the agricultural industry and meet the growing global food demands.

Smart farming has emerged, utilizing the latest advancements in robotics, sensor technology, and communication technology to support farming operations.

Drones are a key part of the smart farming revolution and are operating in many areas of farming, including:

- Field mapping—monitoring the health of crops and soil, and weed management
- Plant stress and nutrient detection
- Planting seeds
- Field spraying operations

Rise of drones in smart farming

Drones have become the farmer's eyes and hands in the sky, helping to optimize various farming operations from above. It includes more passive operations, such as monitoring operations that communicate updates to the farmer, as well as more active operations that involve direct interaction with crops.

Using drones helps farmers reduce their working hours, as many manual tasks can be automated, leading to higher productivity. Using drones is also much cheaper than large agricultural equipment. The use of smart drones also optimizes operations.

For example, in chemical spraying, only the right amount is sprayed, leading to a more efficient process where less material is wasted. The ability to react to any issues more quickly can also help protect farming yields and reduce costs associated with lost crops.

These factors make farming operations more feasible and scalable, especially as farming margins have become tighter due to the increase in costs over the last few years.

A variety of drones are utilized in smart farming operations, including quadcopters, hexacopters, and octocopters. While these all have a different number of 'arms', they all have similar components and operating conditions. This typically involves the use of advanced sensors, communication, and IoT technologies, and in some cases, artificial intelligence (AI).

On the sensing and monitoring side, smart farming drones use a combination of light detection and ranging (LiDAR), vision (including multispectral), thermal, microwave, global navigation satellite system (GNSS), and infrared (IR) sensors.

It is a combination of positioning and monitoring sensors that enables them to navigate over the fields (as well as take off and land) and detect a wide range of obstacles and issues in the field. The drones contain advanced algorithms that perform sensor fusion (taking all the data from different sensors so it can be processed together) to process all the sensor data into visual maps for the operator.

Spotting any issues early means that interventions can be put in place to prevent the spread of diseases or pests to other nearby crops and implement measures to improve plant health through more tailored nutrient feeding. These mapping operations can also assess crop yield by analyzing and evaluating the soil and crops, alongside the number of weeds present in the field, allowing farmers to better plan for their harvests.

For plant nutrition and health, drones can monitor the growth differences of plants on a weekly basis, generating prescription maps and synchronizing the data with the drones involved in spraying fertilizers over the field.

Dones are also ideal for tackling pests and weeds. Once identified by monitoring drones, targeted pest control operations and weedkiller spraying can be synchronized with other drones to tackle the issues before they become more serious.

There are three key detection sensors explicitly used for mapping and analyzing the fields above: multispectral vision sensors, thermal sensors, and microwave sensors. For example:
Multispectral sensors can measure the canopy chlorophyll content of different plants to estimate the growth of all plants in an area. Spectral imaging is also used in conjunction with soil sampling to look at the levels of nitrogen, phosphorus, and potassium in the crop. These sensors can also indicate pH levels.

While it doesn't directly measure the pH, mapping changes in plant health and stress can provide evidence of potential pH imbalances in the crops. Thermal sensors measure the emissivity and brightness temperature on the surface of a plant and the soil.

These sensors can detect localized water stress and diseases in a field, providing insight into plant stresses caused by a lack of water or excessive fertilizer use. For measuring the soil, thermal sensors can analyze local moisture levels to identify areas that require more water, allowing the area to be watered quickly before it affects plant growth.

Microwave sensors can detect differences in crop growth and soil conditions by measuring the interaction of microwave signals with the field, such as the water content in the soil. Because they use microwaves, they are beneficial in cloudy and rainy conditions, as the signal is not affected, and are especially useful in regions of the world that experience prolonged monsoon seasons.

When performing sensing and monitoring operations, the quality of the data obtained and communicated back to the operator is highly dependent on the speed, altitude, and route of the drone.

In smart farming operations, routes are pre-planned using GPS data to avoid these issues, ensuring that data can be captured efficiently and accurately.

Drones for seeding and planting

Alongside monitoring, drones carry pods and seeds for planting trees and crops in target areas, helping to speed up planting operations, thus enabling the precise planting of crops without relying on human

guesstimation, allowing planting in difficult-to-reach locations that human hands can't access, and reducing waste by cultivating only the number of seeds required.
Drones can also cover a much wider area (at a much faster rate) than humans can with manual methods, and they disrupt a lot less soil than humans do using heavy machinery, promoting soil health. For farmers, it is a more economical solution, not just from a waste perspective, but also because it requires less manpower and less heavy machinery operation.

Drones use their precise location and imaging sensors to pinpoint predetermined locations to ensure that they are planted evenly to promote plant health (where they're not competing for space and nutrients in the soil).

The drones carry a predetermined number of seeds, depending on their payload weight and volume, and drop them precisely to the designated locations in the field. They can be used in any field but are best in demanding terrains where it is harder for humans to operate machinery and plant by hand.

In a time when farmers are looking to get the maximum output in as little time as possible, drones have become an invaluable tool for promoting efficiency during the planting phase. There are commercial drones in use specifically for planting that can cover 21 hectares an hour, which is much faster than any manual approach.

Using drones for field-spraying
As noted before, once the fields have been mapped with monitoring drones, drones designed for field spraying can perform a wide range of spraying operations to promote soil and plant health. This is being performed on a wide range of farms, including vineyards, canola fields, and banana plantations.

Once the locations requiring attention are known, the drones fly over at high speeds and cover large areas of land much quicker than can be done by manual means. Therefore, any crops requiring attention receive help promptly to promote crop yield. Similarly to planting drones, field spraying drones can also access hard-to-reach places, such as boggy areas and steep hills that are unsuitable for machinery.

These field-spraying drones can be used to deliver pesticides, herbicides, and fertilizers where needed. By only using the required amount of chemicals, it conserves resources but also protects the local environment and ecosystem from chemical drift, as over-spraying using manual methods with tractors (and by using planes) usually ends up in too much chemical being sprayed, where the excess runs off into local water streams and pollutes the environment.

When using highly concentrated chemicals, drones allow for expanding the coverage area and applying less volume per plant. Alongside being more efficient, drones are helping farming operations to become more environmentally friendly. For larger coverage areas that require treatment, drones can move swiftly and cover up to 50 acres per hour while carrying tens of kilograms of liquid chemicals.

Where drone-based smart farming goes next
Tremendous strides in versatile drone technology and smart farming operations have been made so far; however, like any innovative area, new developments continue to enhance the capabilities of drones used in the field.

One of the biggest developing areas is the integration of AI and machine learning. While some drones already possess these features, many smart drones will soon utilize AI to identify various pests and diseases autonomously, eliminating the need for human intervention. On the side of automation, while drones used in

smart farming operations still require a human operator, there are ongoing developments to create more autonomous drones that can fly, send data, and perform farming operations without human intervention.

Alongside advancements in automation, more innovation is being invested in battery technologies (like those in any electric vehicle vertical) to improve the range of farming drones.

One of the next technological advancements will come from integrating advanced control and communication technologies into drones, allowing drone swarms to be utilized in farming operations to efficiently and quickly cover even larger areas than is possible today.
Beyond pure technological advancements, considerable effort is being invested in creating drones with highly specialized functions. While planting and spraying drones could be classified as application-specific drones (because they are), even more specialized drones are being developed to address particular scenarios.

One example of this is seeding drones, which have been designed to seed bare land left behind after fires or floods, thereby speeding up the recovery time of the land and farm that experienced the disaster.

With continued innovation and increasing adoption, drones will become an indispensable tool in modern agriculture, ensuring food security and sustainable farming practices for a growing global population.

A Young Inventor Is Turning Plastic into A Fuel Called 'Plastoline'

Julian Brown, who is only 22 years old, has quickly gained attention for his solar-powered plastoline invention that is meant to combat the plastic waste problem. Through a process called microwave pyrolysis, he has developed a fuel from plastic that can be made into gasoline, jet fuel, and even a clean diesel fuel alternative. Not only that, but according to him, he is only just getting started.

This technology is currently patent pending, and by using grants to fund the development, Brown is pushing this innovation forward. His plastoline has even been tested by industry professionals, and it's already being used in cars to prove that it works. Brown announced that he has plans to soon test the plastoline at a Nissan dealership in a Dodge Scat Pack.

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