

The Perfect Storm – Challenges in the Electronics Components Supply Chain

Georg Steinberger, Chairman FBDi

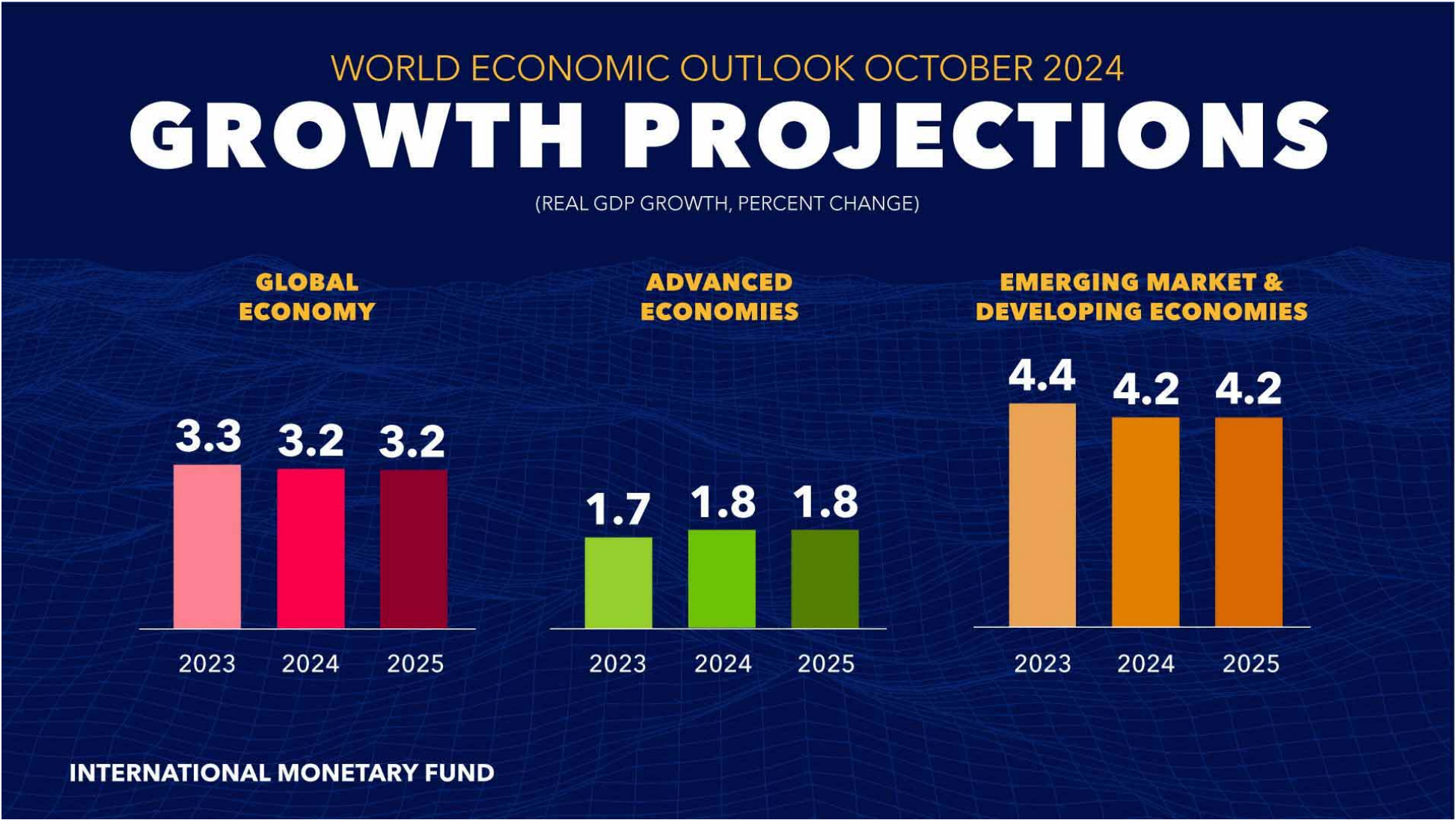
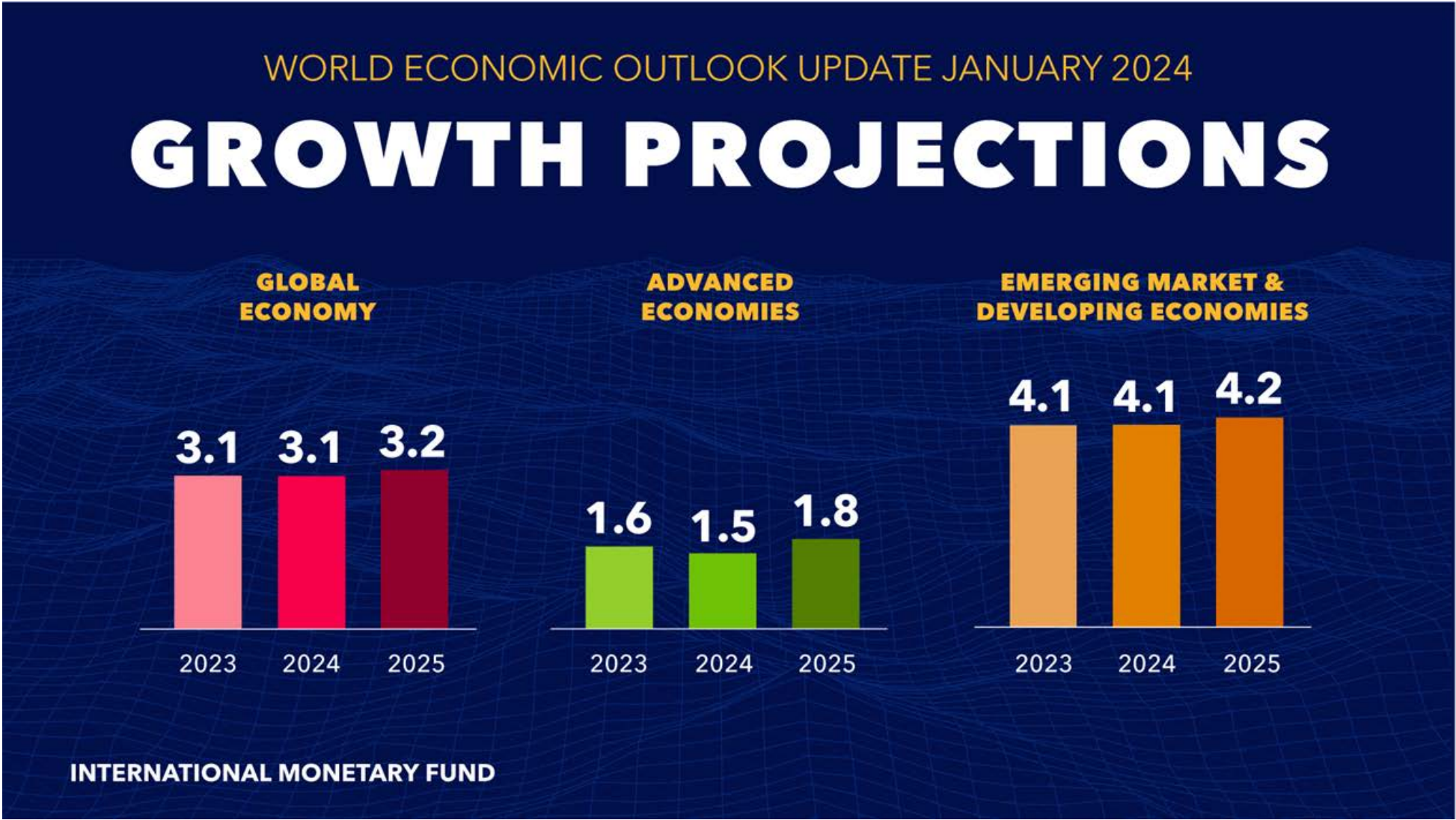
November 2024

How to define a Polycrisis?

- The world and its economy is deeply connected. Every major crisis can have global potential.
- Major crisis events with potential to disrupt supply chains:
 - Trade Conflicts (US-China)
 - Pandemic
 - Transportation breakdowns
 - Military conflicts
 - Climate Change
 - Autocracy and Nationalism
 - Disruptive Technologies
- **All of them have happened or are happening now. And now Trump...**



Worldwide Economic Confidence (IMF)



IMF GROWTH PROJECTIONS JANUARY 2024			
REGIONS	2023	2024	2025
World	3.1	3.1	3.2
United States	2.5	2.1	1.7
Euro Area	0.5	0.9	1.7
Middle East & Central Asia	2.0	2.9	4.2
Emerging and Developing Asia	5.4	5.2	4.8
Latin America and the Caribbean	2.5	1.9	2.5
Sub-Saharan Africa	3.3	3.8	4.1

IMF GROWTH PROJECTIONS OCTOBER 2024			
REGIONS	2023	2024	2025
World	3.3	3.2	3.2
United States	2.9	2.8	2.2
Euro Area	0.4	0.8	1.2
Middle East & Central Asia	2.1	2.4	3.9
Emerging and Developing Asia	5.7	5.3	5.0
Latin America and the Caribbean	2.2	2.1	2.5
Sub-Saharan Africa	3.6	3.6	4.2

Global Business Outlook (Standard & Poors)

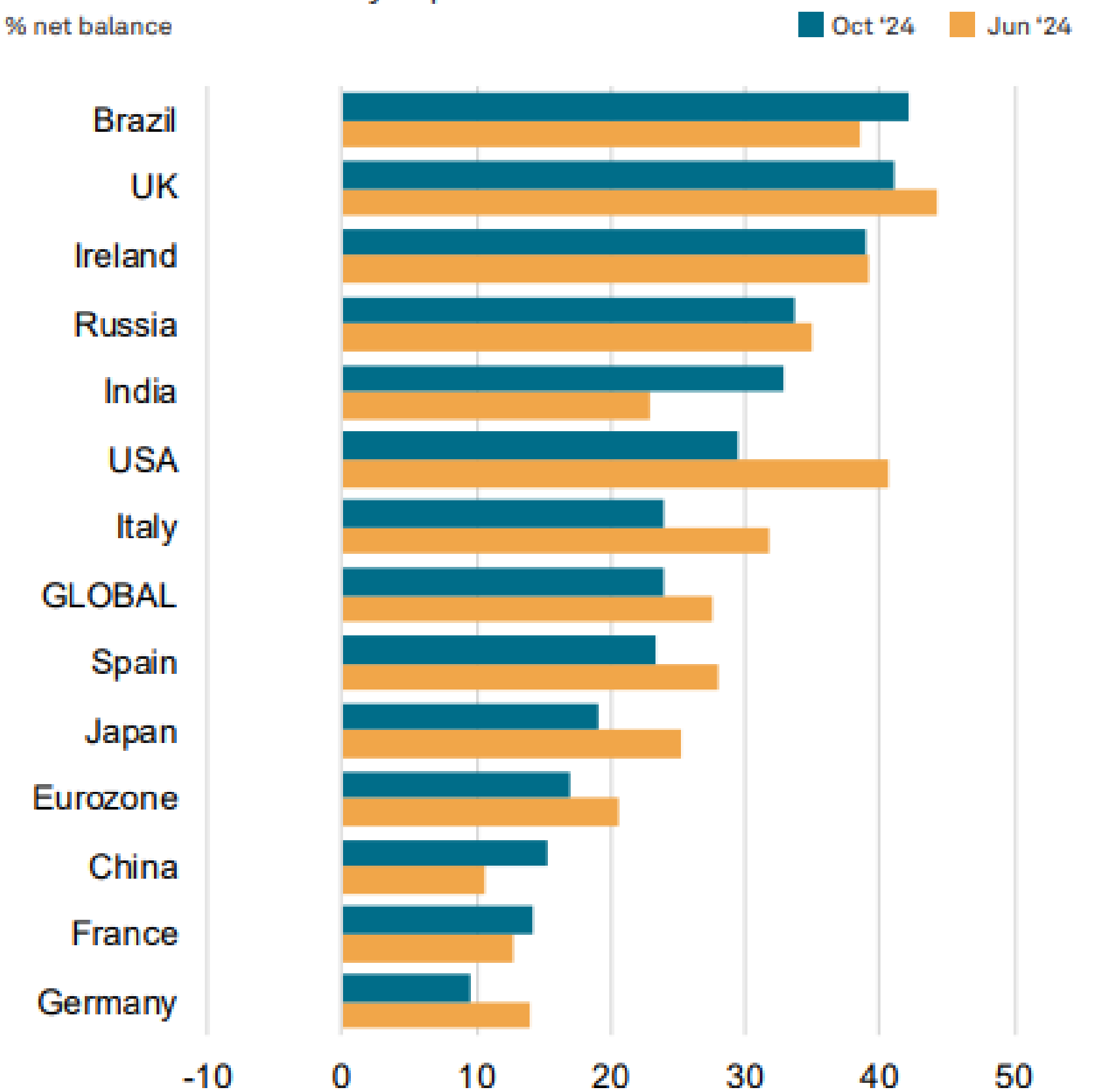
PMI	Oct 19	Oct 20	Oct 21	Oct 22	Oct 23	May 24	Aug 24	Sep 24	Oct 24
Global	49,7	53,0	54,1	49,8	48,8	50,9	49,6	48,8	48,8
EU 19	45,7	54,8	58,6	48,4	43,1	47,3	45,8	45,0	46,0
Germany	41,7	58,2	58,4	47,8	40,8	45,0	42,4	40,6	43,0
Italy	47,8	53,8	59,7	48,3	44,9	45,6	49,4	48,3	46,9
France	50,1	51,3	55,0	47,7	42,8	46,4	43,9	44,6	44,5
UK	48,3	53,7	57,1	48,4	44,8	51,2	52,5	51,5	49,9
China	51,4	53,6	50,0	48,1	49,5	51,7	50,4	49,3	50,3
USA	51,0	53,3	60,7	52,0	50,0	51,3	47,9	47,3	48,5

Source: S&P Markit, November 2024

Baseline Growth/Recession = 50

- All indicators negative, except China (but... real-estate, unemployment, general economic weakness, crisis in Chinese semiconductor independence move)
- US dropped despite positive economic data (inflation risks)
- EU suffers from German fear
- Global Confidence goes sideways

Global Business Activity expectations
% net balance

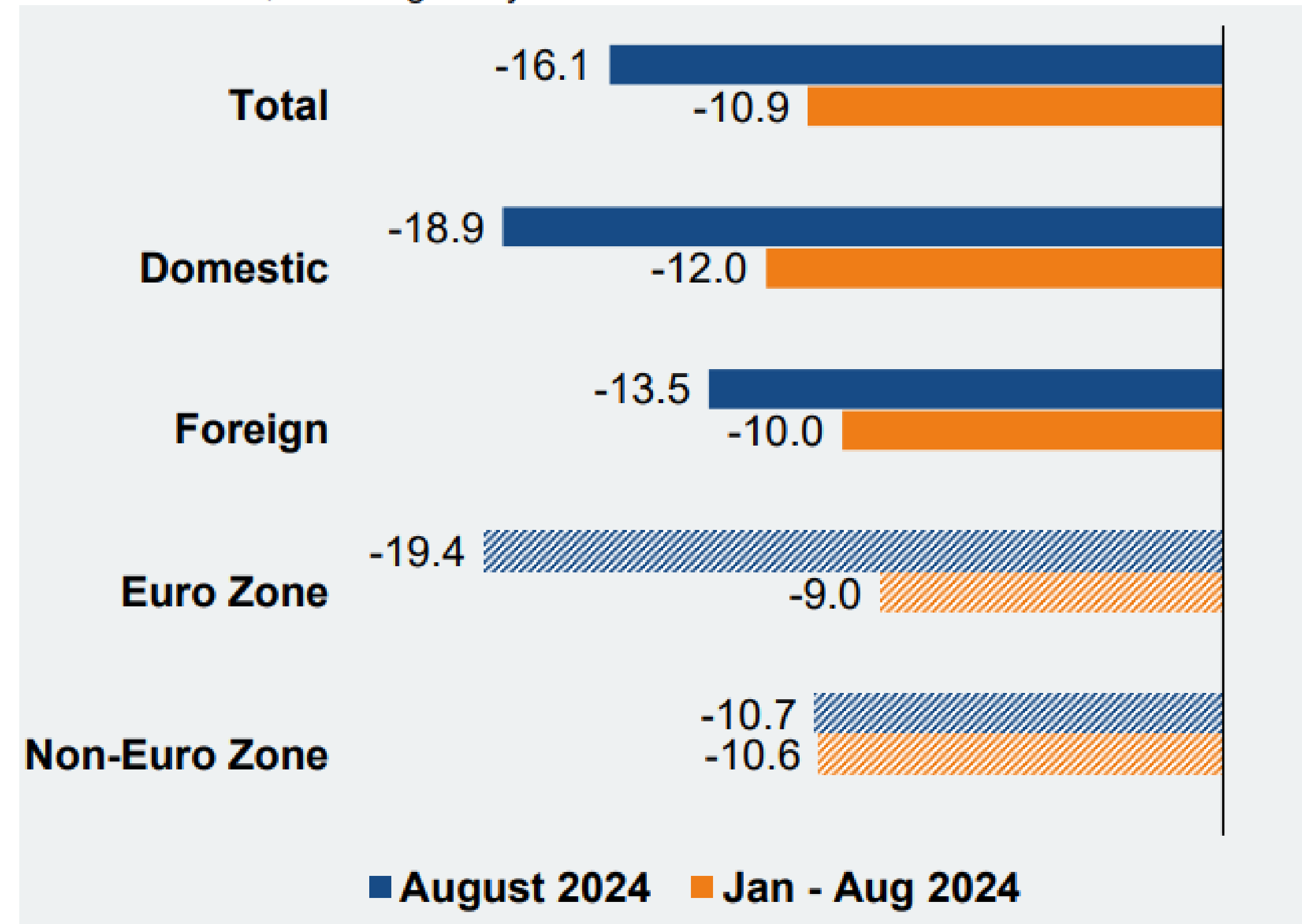


Source: S&P Global PMI.

German electro and digital industry

– New orders

Nominal values, % change on year earlier



Source: Destatis and ZVEI's own calculations; allocation of foreign new orders shaded

After their interim surge in July, **new orders** in the German electro and digital industry sagged once again in **August 2024**. Overall, they failed their respective pre-year value by 16.1%. Both domestic and foreign bookings fell – the former by 18.9% and the latter by 13.5%. Thereby, new orders from euro zone clients (-19.4%) decreased almost twice as starkly as bookings from third countries (-10.7%).

Taking the **first eight months of this year** together, the value of new orders in our sector fell by 10.9% (again year-on-year rate). Here, domestic and foreign bookings receded by 12.0% and 10.0%, respectively.

Business partners from the euro area reduced their bookings by 9.0% (year over year) between January and August. New orders from foreign customers outside the common currency union were 10.6% down.

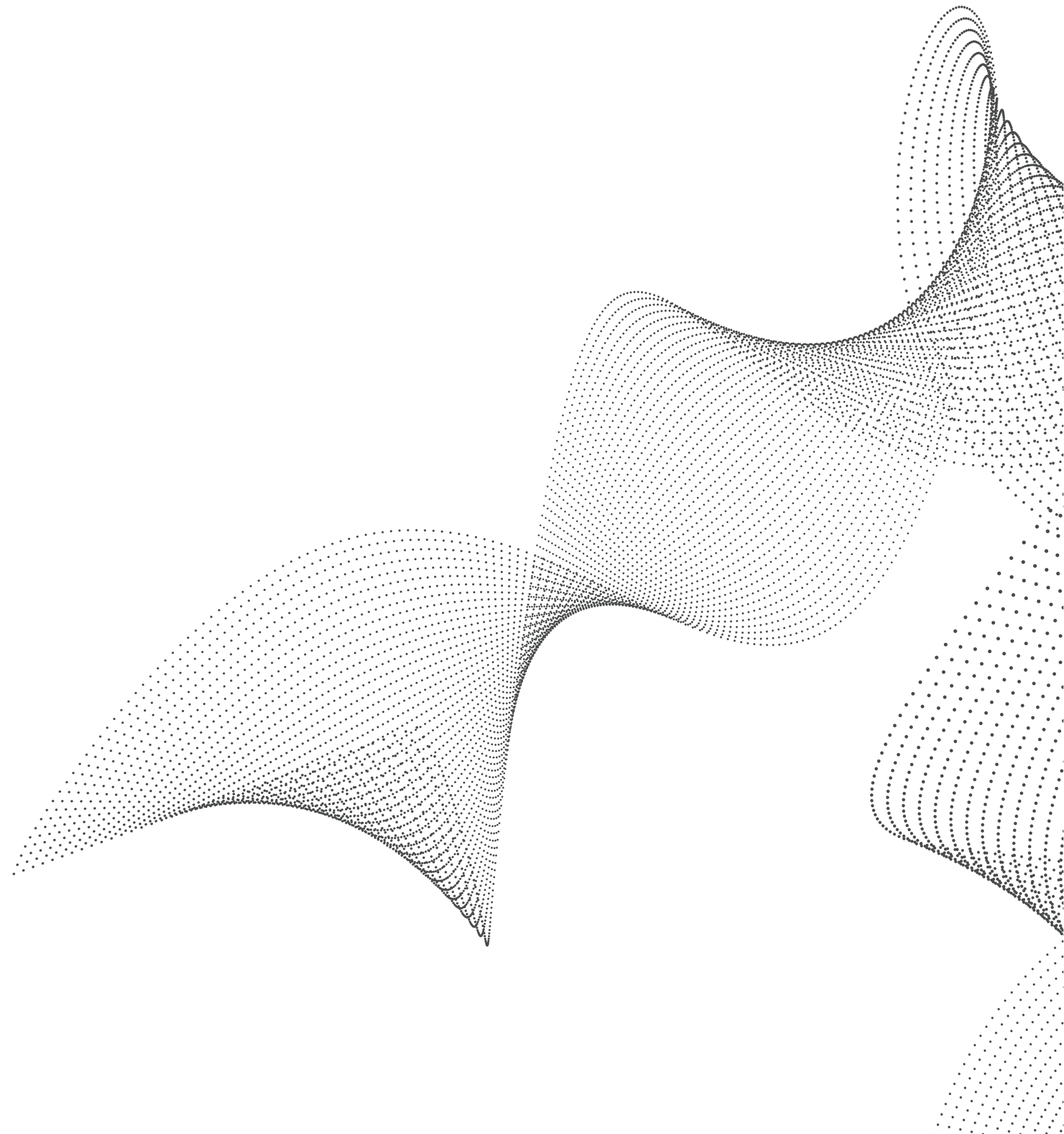
Sunset Boulevard in Europe?

- European electronics dependent on automotive (>35%) and automotive has a problem
- European transformation (energy and digital) moves too slow (→ growth driver for electronics)
- Germany: Political and economic standstill, no investment in infrastructure
- Innovation: too little AI, too few startups, too few engineers, too few global leaders
- Demographics: engineering gap will lead to loss of wealth (not just the lack of engineers, also the loss of key complexities)
- 2030: Europe (and particularly Germany) will further lose global competitiveness

...and this is the optimistic perspective...



WW Components Market



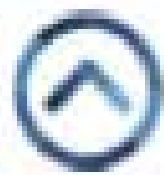
WSTS Spring Forecast (June 2024)

Spring 2024	Amounts in US\$M			Year on Year Growth in %		
	2023	2024	2025	2023	2024	2025
Americas	134,377	168,062	192,941	-4.8	25.1	14.8
Europe	55,763	56,038	60,901	3.5	0.5	8.7
Japan	46,751	46,254	50,578	-2.9	-1.1	9.3
Asia Pacific	289,994	340,877	382,961	-12.4	17.5	12.3
Total World - \$M	526,885	611,231	687,380	-8.2	16.0	12.5
Discrete Semiconductors	35,530	32,773	35,310	4.5	-7.8	7.7
Optoelectronics	43,184	42,736	44,232	-1.6	-1.0	3.5
Sensors	19,730	18,265	19,414	-9.4	-7.4	6.3
Integrated Circuits	428,442	517,457	588,425	-9.7	20.8	13.7
Analog	81,225	79,058	84,344	-8.7	-2.7	6.7
Micro	76,340	77,590	81,611	-3.5	1.6	5.2
Logic	178,589	197,656	218,189	1.1	10.7	10.4
Memory	92,288	163,153	204,281	-28.9	76.8	25.2
Total Products - \$M	526,885	611,231	687,380	-8.2	16.0	12.5

USA und Asia show double-digit dynamics, Europe and Japan are weak (numbers for 24 in Europe are over-optimistic)

2025 confidence mainly built on AI, but not in Europe

SEMICONDUCTOR DEVICE REVENUE FORECAST – BY DEVICE TYPE



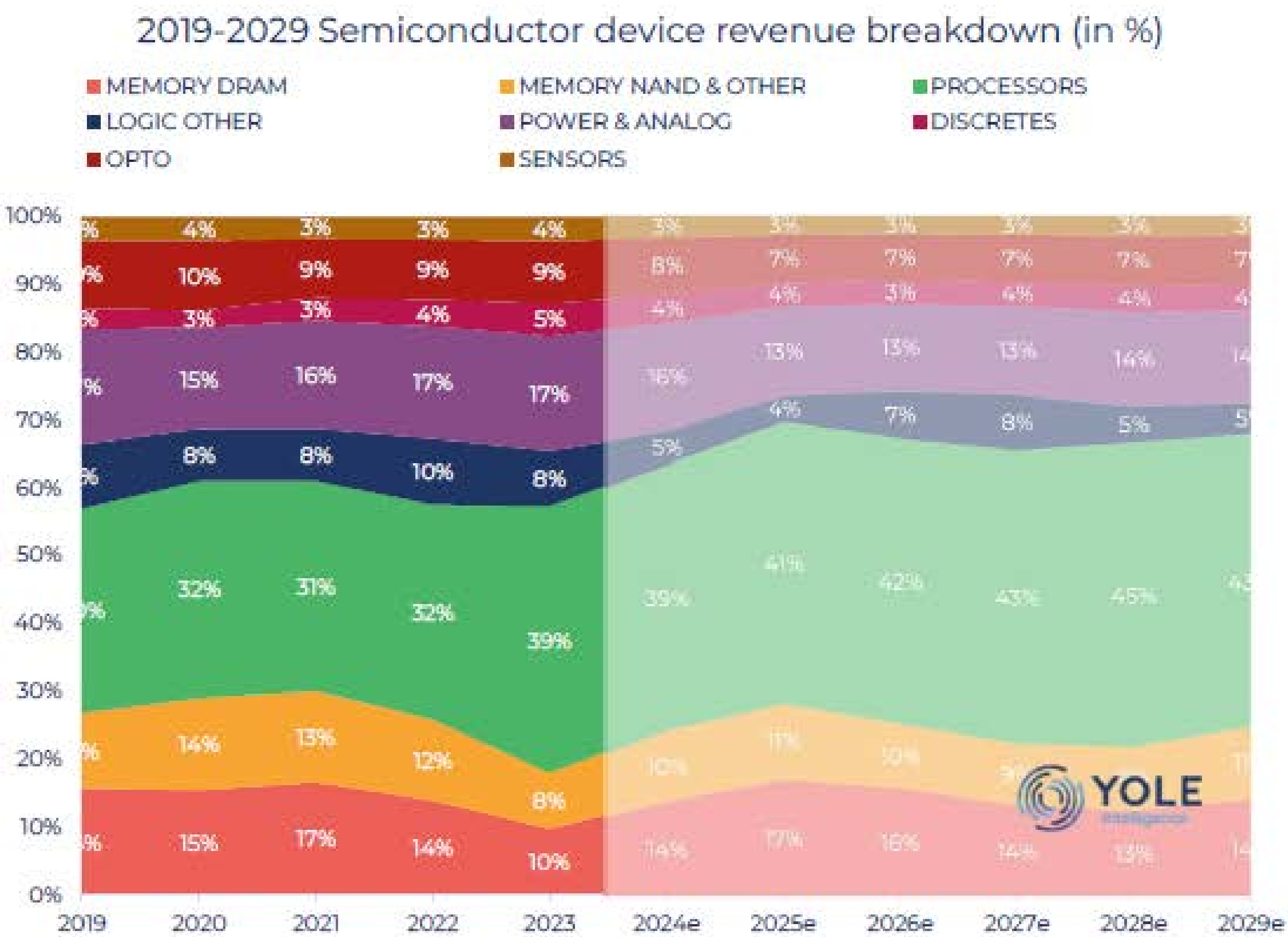
The structure of the market by device type is expected to remain relatively stable within this 5-year forecast.

Memory is the most volatile part of semiconductors, representing 20% to 30% of the market.

Logic, including Processors, represents 40% to 45% of semiconductor revenue.

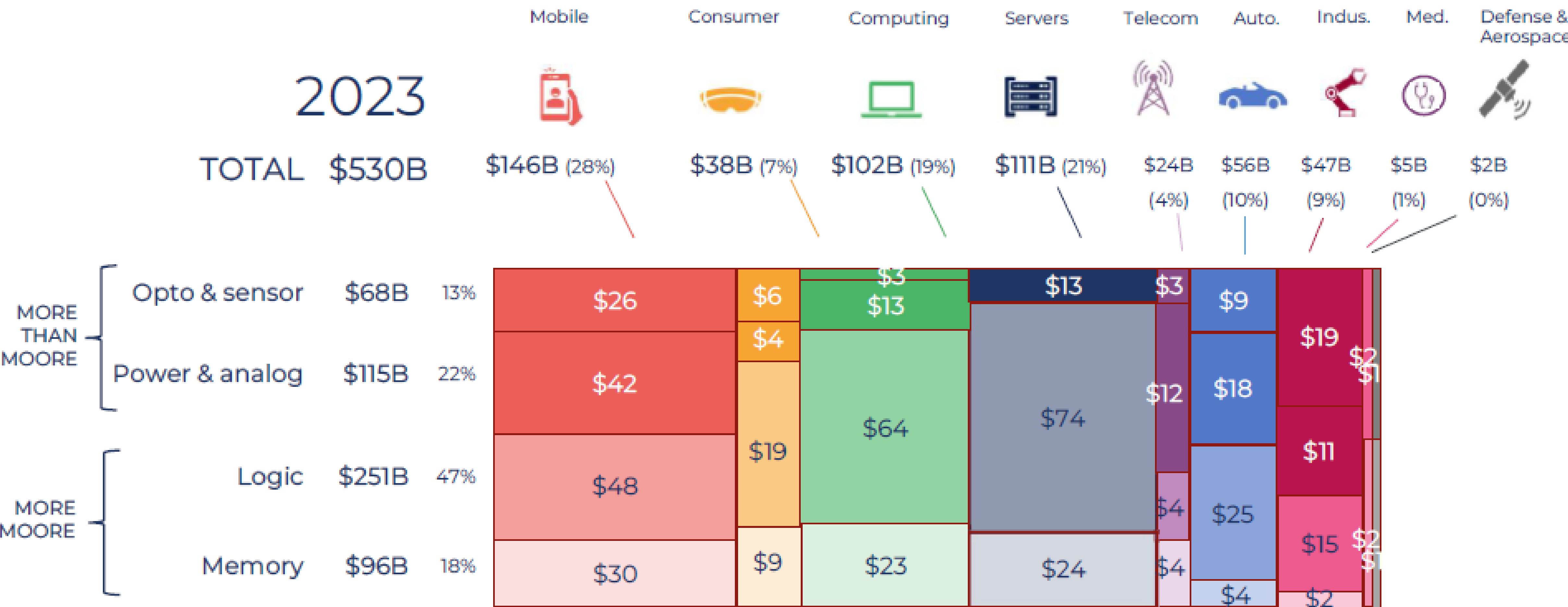
Power & Analog and Discretes has a 17% to 23% share

Finally, Opto & Sensor represent 12% to 14%, depending on when we are in the semiconductor cycle



OVERVIEW OF THE SEMICONDUCTOR DEVICE INDUSTRY

Market segmentation revenue for the 2023 period



SEMICONDUCTOR INDUSTRY LANDSCAPE

All business models combined

The US is still the heavyweight, with 44% of the combined revenue
TW / EU / KR / JP have similar weight in the semiconductor industry
CN share is now 1/10th of US and 1/3rd of TW / EU / KR / JP

US 44%



EU 12%



CN 4%



KR 12%



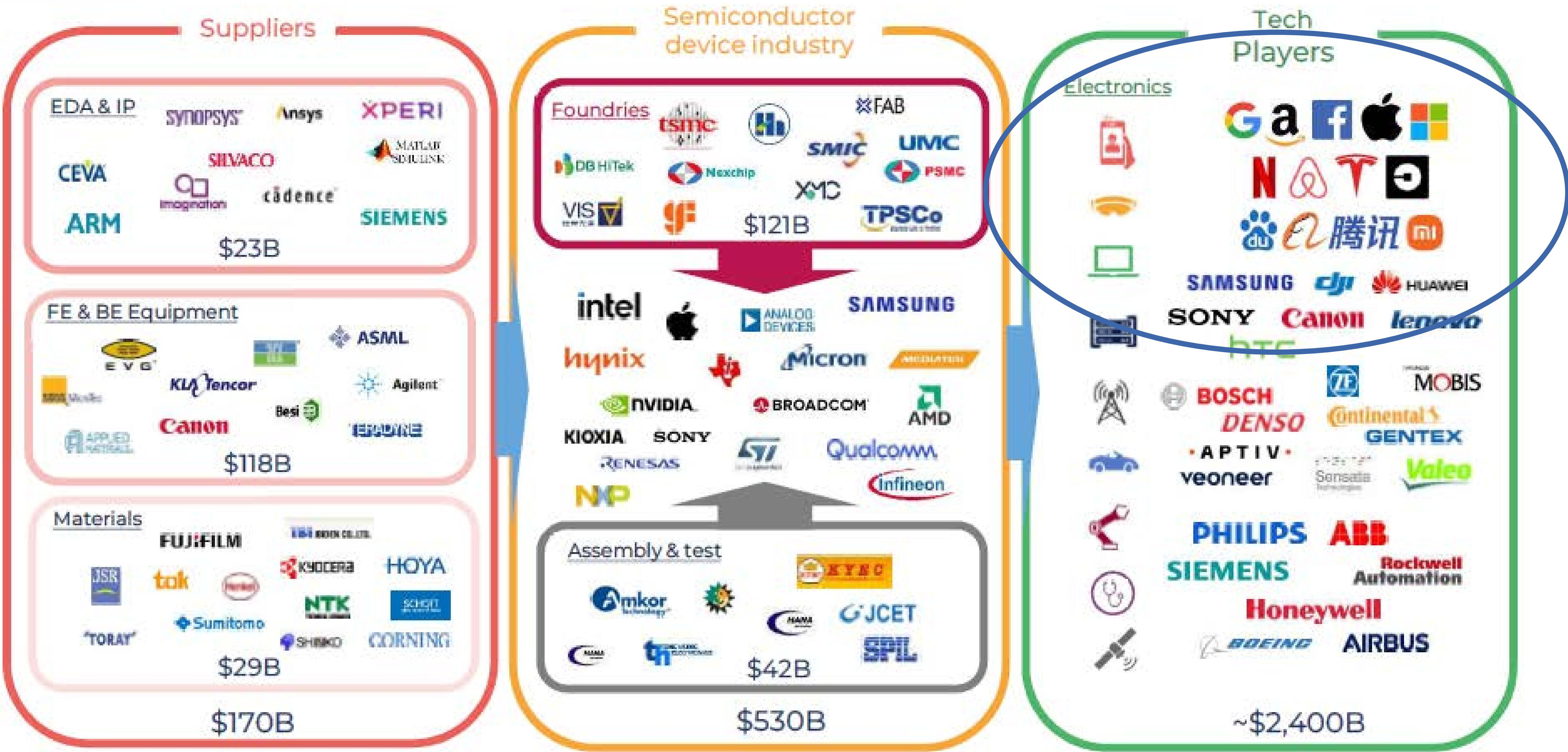
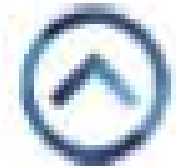
JP 10%



TW 15%



2023 SEMICONDUCTOR VALUE CHAIN IN \$

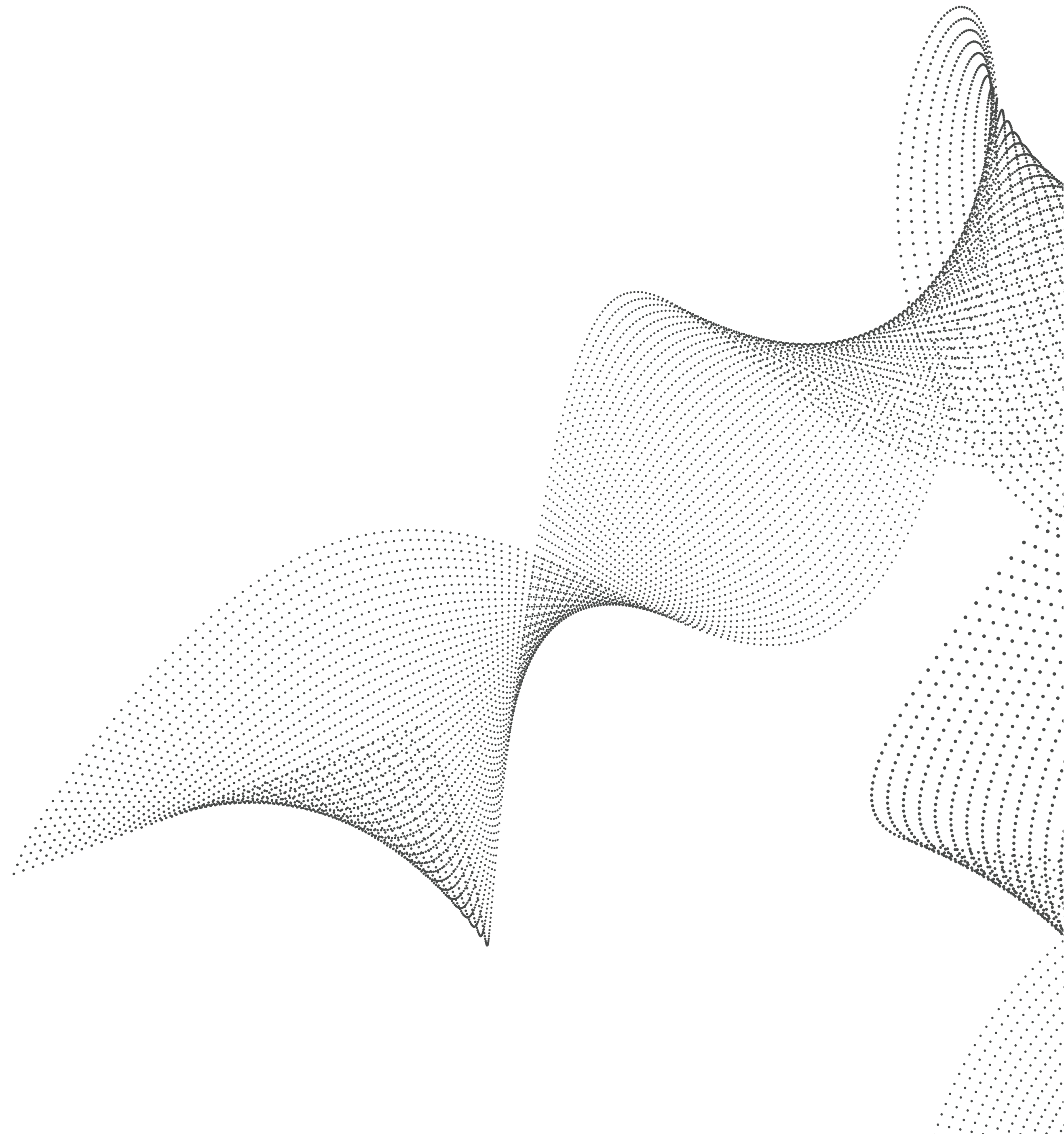


+

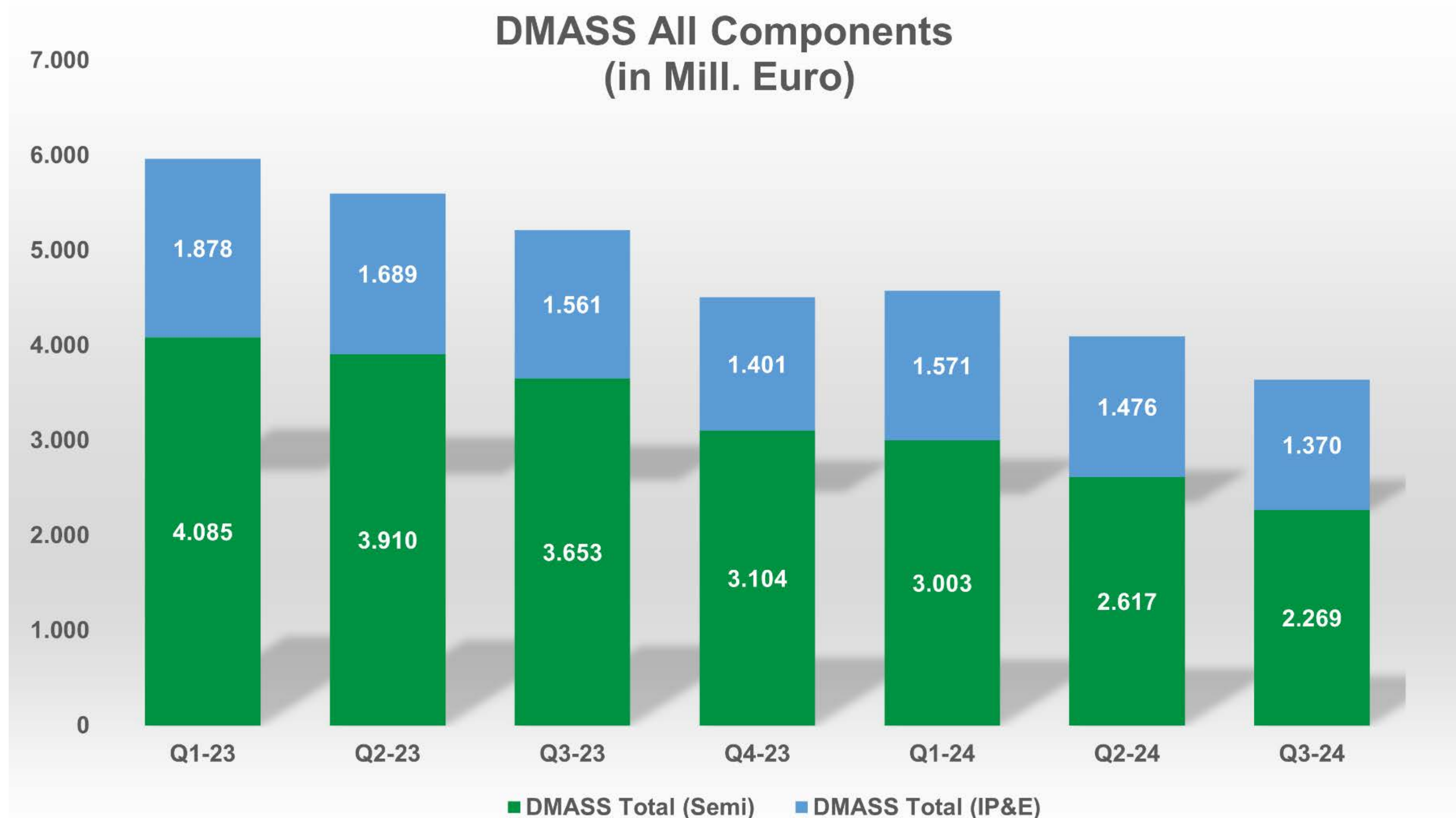
-
- Conclusion:
Europe
needs a
better
Industry
Policy

- Today focused on 'old' industries
- We spend more for agriculture subsidies than for innovation
- European Chips Act analysis (<https://www.interface-eu.org/publications/europe-semiconductor-strategy>)
- Real industry policy would massively focus on global competitiveness in fields of future growth (AI, Quantum, Energy, All-Electric) → making life better
- Are Microsoft and Google the best the computing world has to offer?

European Components Distribution



European Distribution Market



Source: DMASS Europe e.V., October 2024. All rights reserved

European Distribution Market (All Components)

Country/Region Semi	Total k€	Change Q3/Q3
UK	182.421	-25,46%
IRELAND	20.092	-36,51%
GERMANY	557.264	-49,36%
FRANCE	154.082	-35,51%
ITALY	196.713	-40,28%
SWITZERLAND	90.662	-36,44%
NORDIC	175.203	-38,84%
BENELUX	80.005	-43,17%
IBERIA	124.951	-24,00%
AUSTRIA	47.713	-55,34%
RUSSIA	0	-100,00%
EASTERN EUROPE	448.301	-26,61%
ISRAEL	113.784	-20,28%
TURKEY	44.688	-45,04%
OTHER	33.532	4,28%
DMASS Semi Total	2.269.412	-37,88%

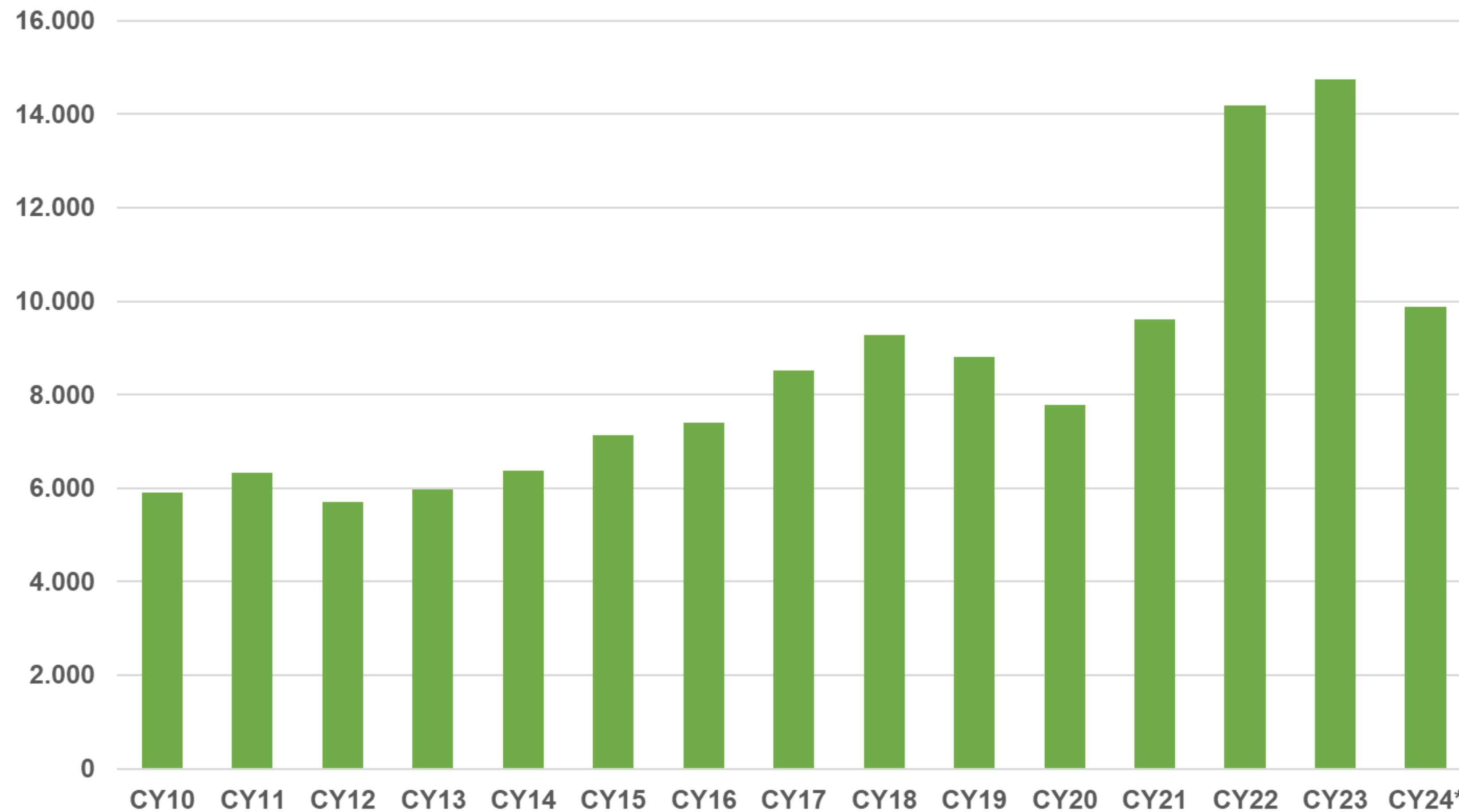
Country/Region IP&E	Total k€	Change Q3/Q3
UK	166.520	-2,40%
IRELAND	12.043	4,82%
GERMANY	297.958	-21,40%
FRANCE	138.888	-5,21%
ITALY	138.742	-8,51%
SWITZERLAND	41.717	-13,99%
NORDIC	119.560	-12,49%
BENELUX	67.380	-11,88%
IBERIA	81.096	-5,58%
AUSTRIA	33.622	-31,57%
RUSSIA	382	#DIV/0!
EASTERN EUROPE	186.951	-10,30%
ISRAEL	31.112	-2,64%
TURKEY	30.265	-27,53%
OTHER	23.329	1,37%
DMASS IP&E Total	1.369.567	-12,27%

Product Group Semi	Total k€	Change Q3/Q3
DISCRETE	123.883	-27,09%
POWER	255.732	-39,20%
SENSORS & ACTUATORS	67.042	-27,56%
OPTO	204.571	-20,81%
ANALOG	594.587	-37,82%
MEMORY	214.367	-26,60%
MOS MICRO LOGIC	480.339	-43,87%
PROGRAMMABLE LOGIC	184.267	-45,85%
STANDARD LOGIC	22.200	-40,92%
OTHER LOGIC	122.424	-46,79%
DMASS Semi Total	2.269.412	-37,88%

Product Group IP&E	Total k€	Change Q3/Q3
PASSIVES	481.083	-19,32%
ELECTROMECHANIC	788.428	-7,16%
POWER SUPPLIES	100.056	-13,43%
DMASS IP&E Total	1.369.567	-12,27%

- European Distribution YTD 2024: -26%
- Semiconductors YTD 2024: -32%

Semiconductor Distribution Sales in Million Euro



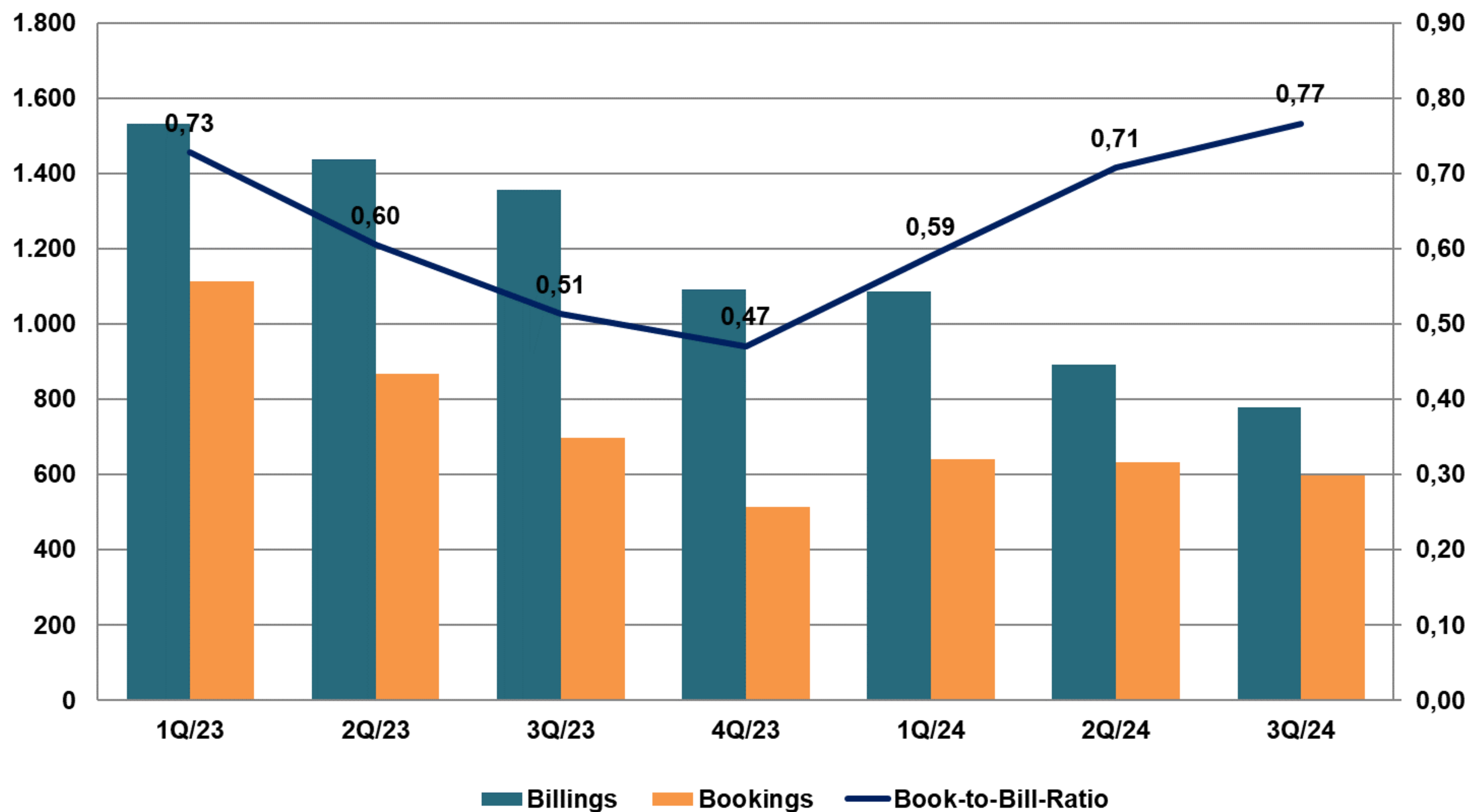
* = Forecast

Copyright: DMASS Europe e.V., October 2024

- Back to 2021 level
- Outlook 2025: flat (optimistic view)

German Distribution Market

Electronic Components Distribution Market Germany in Million Euro



Source: FBDi e.V., November 2024

Summary

- Difficult year 2024 almost behind us
- Relief for 2025 hinges on Automotive ??
- Export becomes more challenging
- New projects for 2026ff – visibility low
- Long-term outlook positive but depends on economic recovery, more dynamic in transformation (automotive, infrastructure, e-mob, energy)
- Challenge to participate in AI-hardware market
- Does the model “distribution” have a bigger issue than we see?



However... it's not all gloomy,
Europe has 450 million
bright individuals, but we
have to get our act together...



European Competitiveness (Draghi Report)

- At the current state, Europe is not competitive against China and the US → many reasons including energy prices, BUT 70% of the productivity gap to the US is disadvantage in DIGITALISATION
- In order to transform Europe into a powerful force of the 21st century, we need growth and we need unity
- 3 Areas of Focus
 - Closing the innovation gap to the US and China
 - Joint plan to combine decarbonisation and competitiveness: no plan, no growth → nice tourism location
 - Increasing security and reducing dependencies (joint defence strategy, semiconductors)
- Hurdles:
 - Common objectives without action
 - No single market
 - Lack of coordination in critical matters



Georg Steinberger

Chairman FBDi

+49 151 4033 8672

Georg_Steinberger@yahoo.com



Thank you