



Semiconductor Value Chain Updates

Laith Altimime, President, SEMI Europe

May 3, 2022



SEMI – ADVANCING A GLOBAL INDUSTRY



Laith Altimime,
President of SEMI Europe

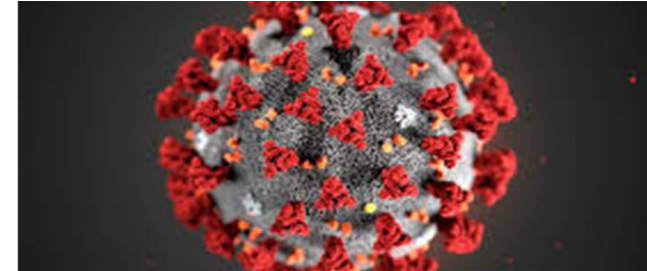
May 3, 2022

Global Semiconductor Value Chain



Challenges – Disrupting Supply Chain and Impacting the Industry)

- **Global COVID-19** pandemic control
- **Chips Shortages & Supply Chain, Automotive to Global Crisis**
- Ongoing trade and **geopolitical tensions** and export restrictions
- **Talent Shortages** and **Diversity, Equity & Inclusion (DEI)**
- **Russia – Ukraine, already strained Supply-Chain**



Semiconductor Value Chain

Semiconductor sales expected to grow >10% to ~\$625B in 2022 after growing ~25% to \$555B in 2021*

- **Shortages**, initially for Automotive, **have spread across the board**, mostly at **legacy technologies**
 - **Critical to ensure chips for semiconductor manufacturing equipment** needed to expand capacity
- Forecasts for **2022 Total Wafer Fab Equipment** sales range from **\$95B-\$100B**, growth of **8-14%**
- **2022 Materials** market expected to **hit to a new high of \$66B-\$70B** – growth of **6-12%**

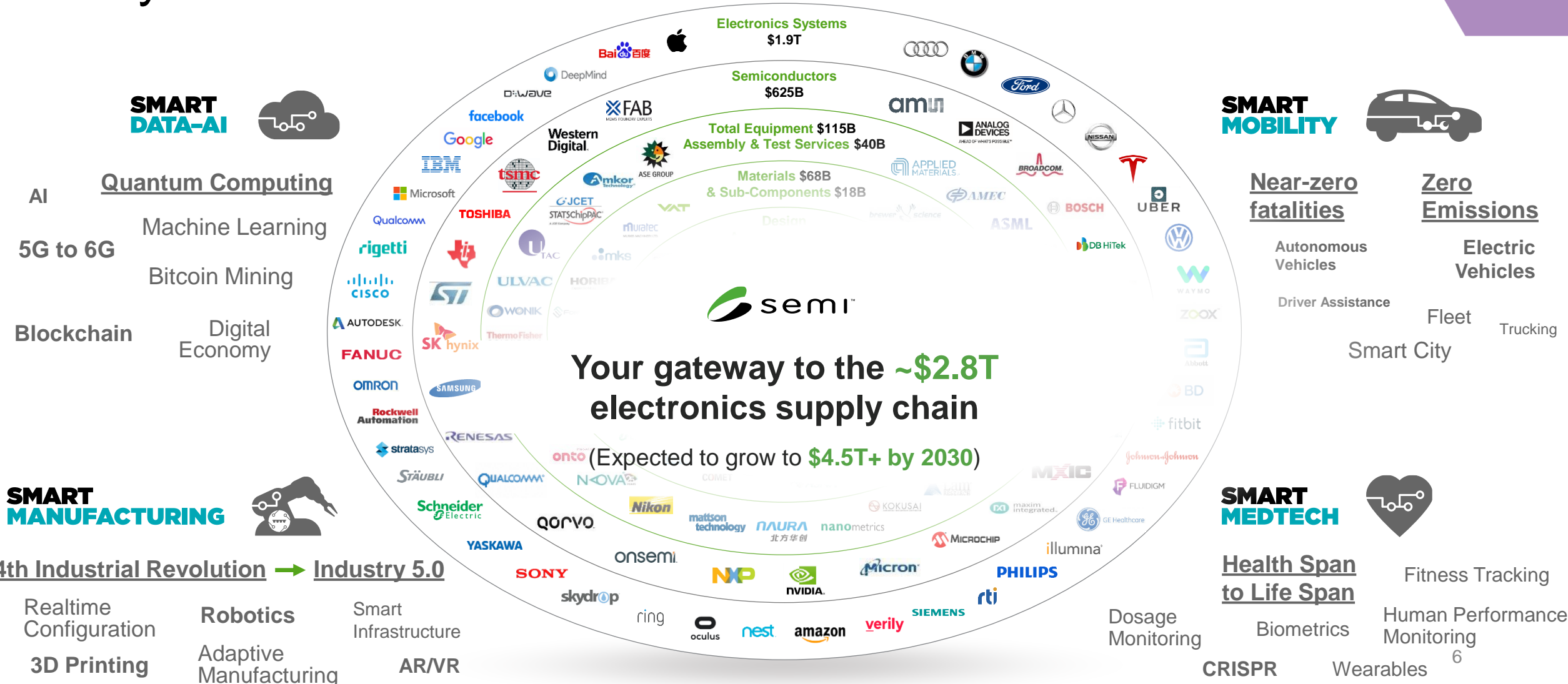
Semiconductor Capital Spending growing with **200mm and 300mm new/major capacity** fabs coming online **between 2020-2024***

- **200mm: 25 fabs/expansions** expected
 - **4 in the Americas, 3 in Europe/Mideast, 18 in Asia** (12-CH, 3-JP, 1-MLY, 2-TW)
- **Total 200mm capacity: 21% growth** expected from 2020 to 2024
- **300mm: 69 fabs/expansions** expected
 - **9 in the Americas, 8 in Europe/Mideast, 52 in Asia** (18-CH, 8-JP, 7-SK, 2-SGP, 17-TW)
- **Total 300mm capacity: 52% growth** expected from 2020 to 2024

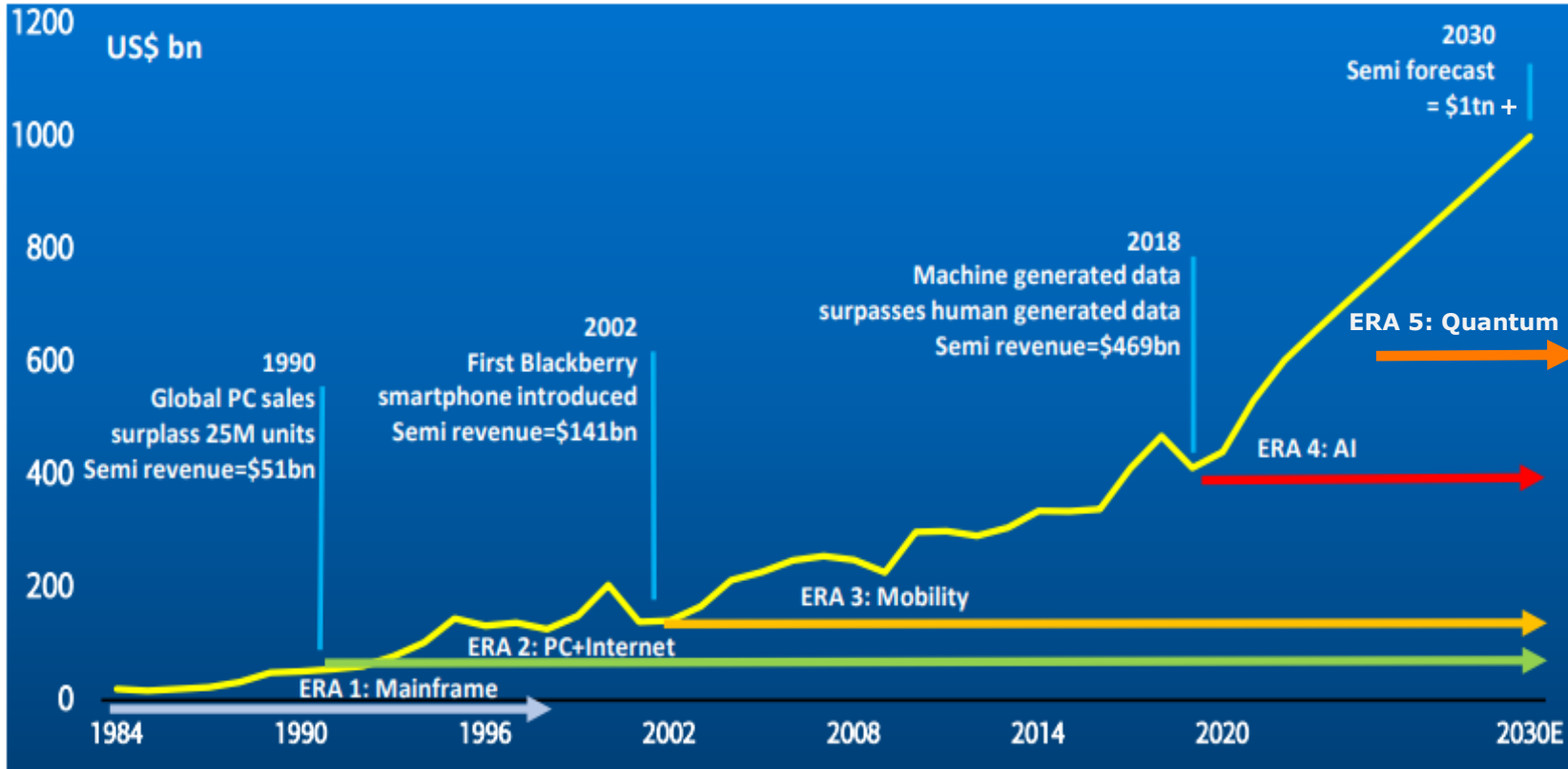
* Sources: Various third-party analysts, SEMI estimates

** Source: SEMI World Fab Forecast 1Q22 (Mar. 2022)

Bringing the Supply Chain Together through Key SEMI Initiatives



New Disruptions are Driving Exponential Growth



Sources: Bank of America, SEMI

	2020	2030	Top Drivers
Non-Memory	\$235B	\$678B	MPUs, High-end Logic
Memory	\$133B	\$467B	DRAM, NAND, Other Memory
Other ICs	\$79B	\$206B	Discretes, Opto
Total Semis	\$446B	\$1,351B	NA

Source: International Business Strategies, January 2022

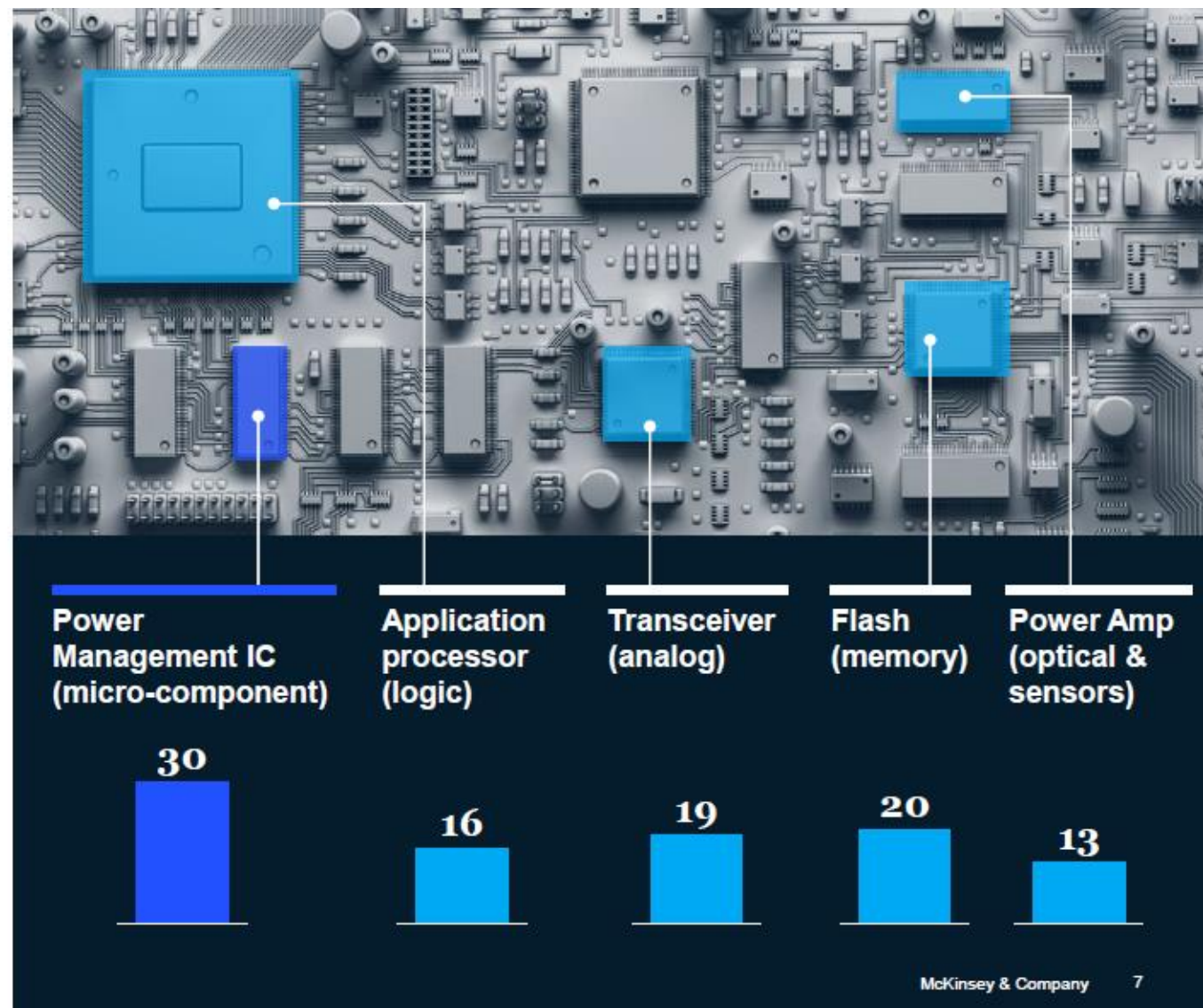
\$500B+ sales in ~50 years → >\$1.3T in the next ~10 years

Note: 8-10% CAGR over the next 10 years

Illustrative

Microcomponents currently with longest lead time of semicon components

Current lead time in weeks
(Nov 21)



SEMI SMART MOBILITY ACTIVE IN 5 REGIONS

80+ COMPANIES



25+

7

Regional GAAC chapter meetings since 2018

SEMICON platforms globally

Regions from left to right: Americas, Europe, Japan, Taiwan, China

SEMI Global Supply Chain – Creating Solutions with Members

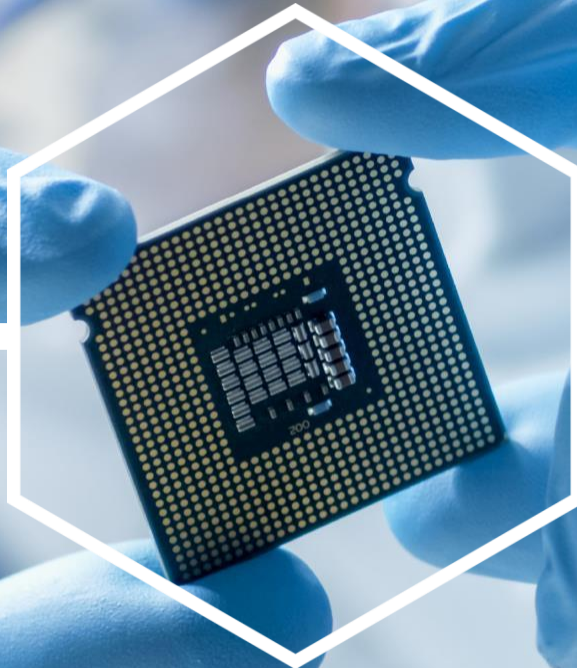
- Global Automotive Advisory Council, (GAAC) automotive across the value chain in 5 SEMI global regions
- SEMI Europe Advisory Board, +RABs in 6 other regions
- McKinsey partnership
- Global Supply Chain Management Initiative (SCM):
 - SEMI will support its members by defining a new vision and SCM blueprint for 2030 and beyond to effectively anticipate and address operational challenges and rapidly escalating macro-challenges
 - Includes member interviews, surveys and white papers

PERVASIVENESS OF SEMICONDUCTORS

Without this...



None of these.



No Digital without Chips!

Europe's Microelectronics Ecosystem

European Leadership



Semiconductor Research



Semiconductors for Automotive, IOT, MS/RF, Sensors, Power



Lithography Equipment & Materials



Mobile Network Equipment



RTOs



Suppliers



Design & Manufacturing





Challenges & Opportunities



Environmental Sustainability

The semiconductor industry has a measurable impact on our environment

- Fabs can consume 100 MW/hr equivalent to powering 50k homes
- A single fab can use 9 M gallons of water/day
- 70+ fabs coming online next 5 years

As an industry, we have a responsibility to minimize our impact and enable positive change.





SEMI Sustainability Advisory Council

Potential deliverables include, but not limited to:

- Sustainability roadmap
- Industry sustainability scorecard
- Standard external reporting process - managing/ responding to stakeholders
- Completeness and accuracy of data across the supply chain

In partnership with:

McKinsey & Company

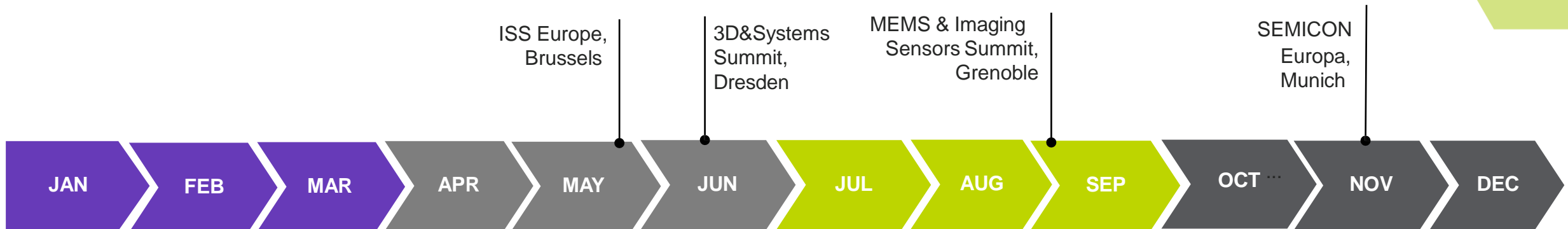
Solutions with vetted ROI to replace existing process/equipment

- Materiality assessment
- Responsible sourcing
- Communications

Sustainability is for all industry segments and members – Get your company involved!

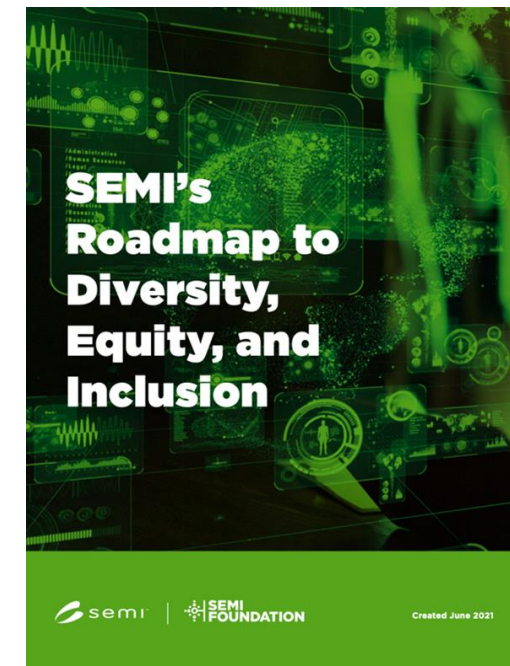


Roadmap 2022 | Empowering a Diverse Workforce



Year-long and ongoing programs and campaigns:

- SEMI Global Update blog articles to 65K+ subscribers
- Social media video campaign
- SEMI member testimonial video
- Diversity Council
- Pact for Skills Executive Committee
- Pacts for Skills DEI working group
- DEI industry survey and report
- Industry Leader in DEI Award, nominations
- Industry Leader in DEI Award, case studies
- Inclusion Webinar Series
- DEI Podcast Series
- European DEI Initiatives Website



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MAY 30, 2022
BRUSSELS, BELGIUM

**3D &
SYSTEMS
SUMMIT**

JUN 14 - 15, 2022
DRESDEN, GERMANY

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**MEMS & IMAGING
SENSORS** SUMMIT

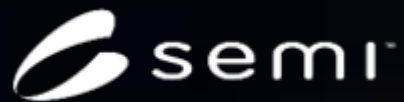
SEP 6 - 7, 2022
GRENOBLE, FRANCE

SEMICON[®]
EUROPA Co-located with
electronica

NOV 15 - 18, 2022
MUNICH, GERMANY



Thank you!



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