



GlobalWafers Co., Ltd.  
環球晶圓股份有限公司

Global Family,  
Global Solutions!

## GlobalWafers America Sherman, Texas

January 15, 2025



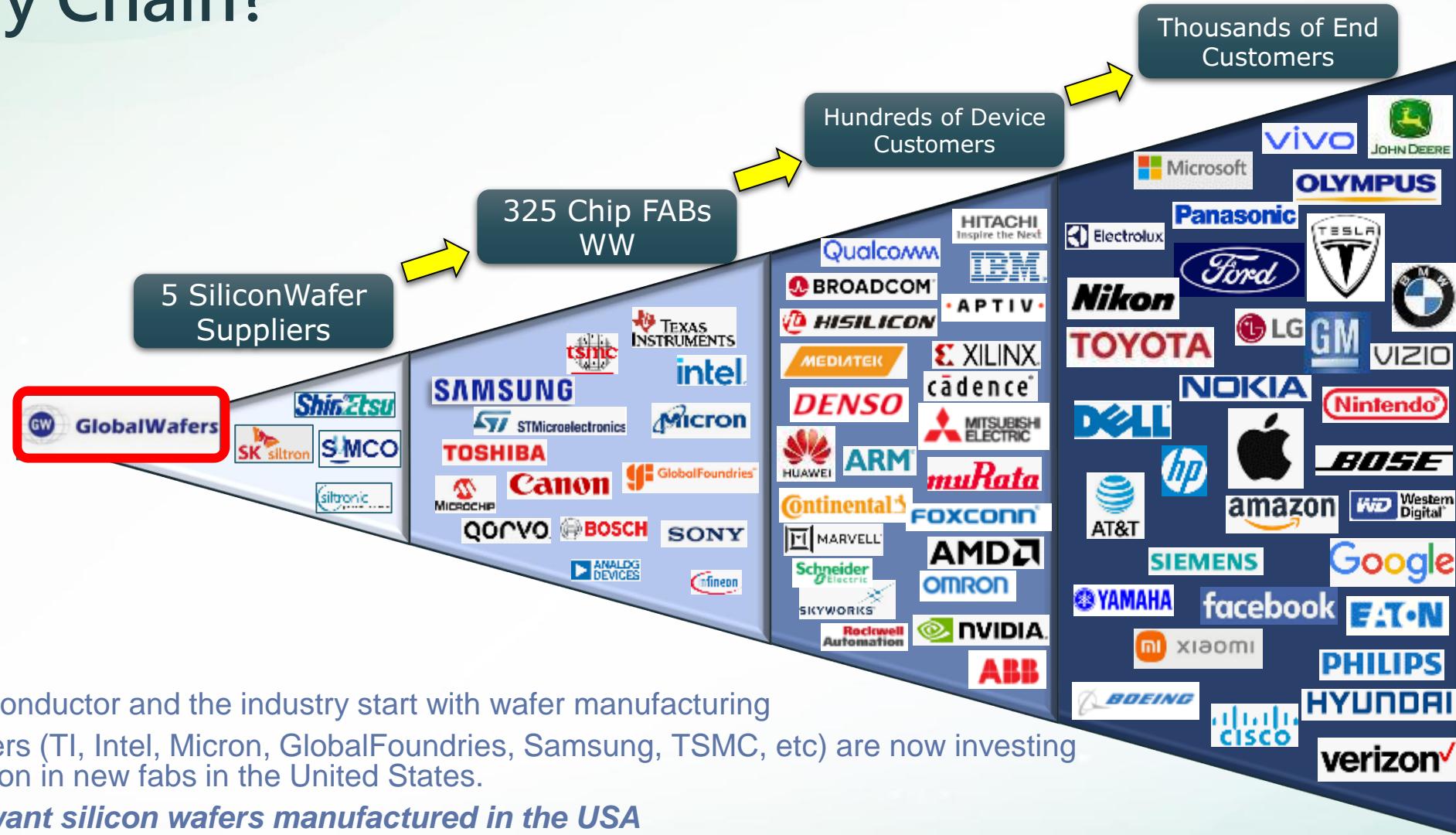


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# GlobalWafers America



# Where Does GlobalWafers Fit Into the Semiconductor Supply Chain?



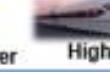
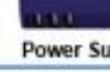
- The semiconductor and the industry start with wafer manufacturing
- Chip makers (TI, Intel, Micron, GlobalFoundries, Samsung, TSMC, etc) are now investing \$400+ billion in new fabs in the United States.
- They all want silicon wafers manufactured in the USA***

# GWC Product Portfolio

## The Broadest in the Industry



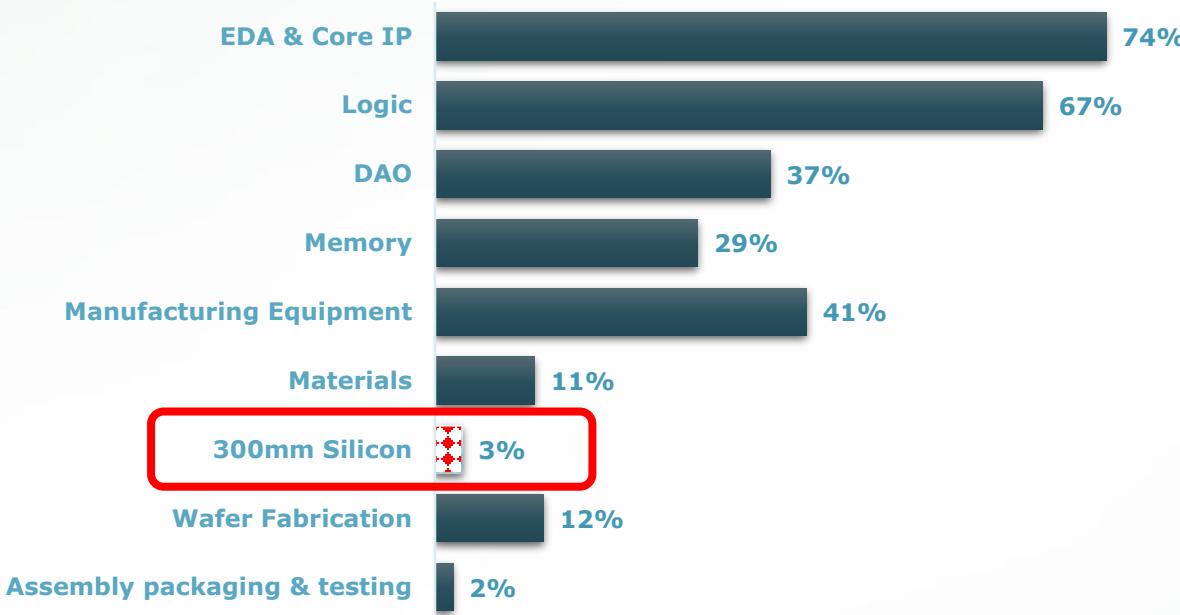
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	Wafer Diameter (mm)			End-applications			
	LE150	200	300	Memory	LCD Driver	Analog/Logic IC	
Annealed Wafer	✓	✓					
EPI Wafer (Epitaxial)	✓	✓	✓				
Polished Wafer	✓	✓	✓				
Diffused Wafer	✓						
Non-polished Wafer	✓						
FZ Wafer (Float Zone)	✓	✓					
SOI Wafer (Silicon on Insulator)	✓	✓	✓				
SiC Wafer (Silicon Carbide)	✓						
GaN/Si, GaN/SiC (Gallium Nitride)	✓	✓					



# Silicon Wafers for Advanced Chips Returning to the U.S. After 20 Years

## Semiconductor Activity in US



- GlobalWafers America will be the first new silicon wafer manufacturing plant for the most advanced chips built in the United States in over 20 years.
- ***GlobalWafers America “will fill a key vulnerability” in the U.S. Semiconductor supply chain***



# GWC- A Global 300-mm Footprint



- GlobalWafers produces 300mm wafers in Korea, Japan, Taiwan, Italy and now the USA
- All locations are now land locked with no room for growth (except South Korea)
- GlobalWafers America establishes a new 'beachhead' for future expansion and will be GlobalWafers 300mm global expansion site for years to come.



# GWA, January 2023- First Dirt Moved

















# Global Wafers America Workforce Needs to 2028



# Top Need: R&M Technician Soft Skills



- Strong work ethic and professional maturity.
- Proactive interest in understanding mechanical, software and chemical systems.
- Strong interpersonal, written communication and verbal communication skills.
- Administrative and technical leadership skills with ability to interface well with other departments.
- Technical writing and critical thinking skills.
- Good activity prioritization and time management skills.

# Top Need: R&M Technicians- Hard Skills



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- Knowledge and understanding of cleanroom protocols
- Rough construction skills using hand and power tools
- Knowledge of low voltage and pneumatic controls operation & repair
- HVAC, Pipe fitting, and/or Orbital Welding experience
- Familiarity with acids, bases, and hazardous chemicals including HF
- Familiarity with flammable, inert, and toxic gasses
- Lock out tag out (LOTO) proficiency
- Knowledge of manufacturing facility systems including deionized water systems, exhaust systems, chemical delivery system, and liquid plumbing systems
- Knowledge of Controls or SCADA systems common to a manufacturing facility.
- Working knowledge: PLCs, VFDs, Human Machine Interfaces (HMI), field devices, and Distributed Control Systems (DCS)
- Experience with/aptitude for building maintenance management systems (procedures, PM, work orders, and work documentation).



# Top Need: R&M Technicians: Problem Solving and Skills Acquisition

- Ability to collect and evaluate operating data to conduct on-line adjustments to products, instrument, or equipment
- Troubleshooting control system operational issues, perform root cause analysis, recommend corrective measures to management.
- Ability to read, interpret & develop blueprints, schematics, control diagrams, and P&IDs
- Program, commission, and debug PLC programs.
- Experience in developing and troubleshooting system architectures.
- Acquire knowledge of existing systems and remain current with systems' upgrades.
- Control System/SCADA Hardware design and configuration.



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Thank You



Learn More on  
Our Website



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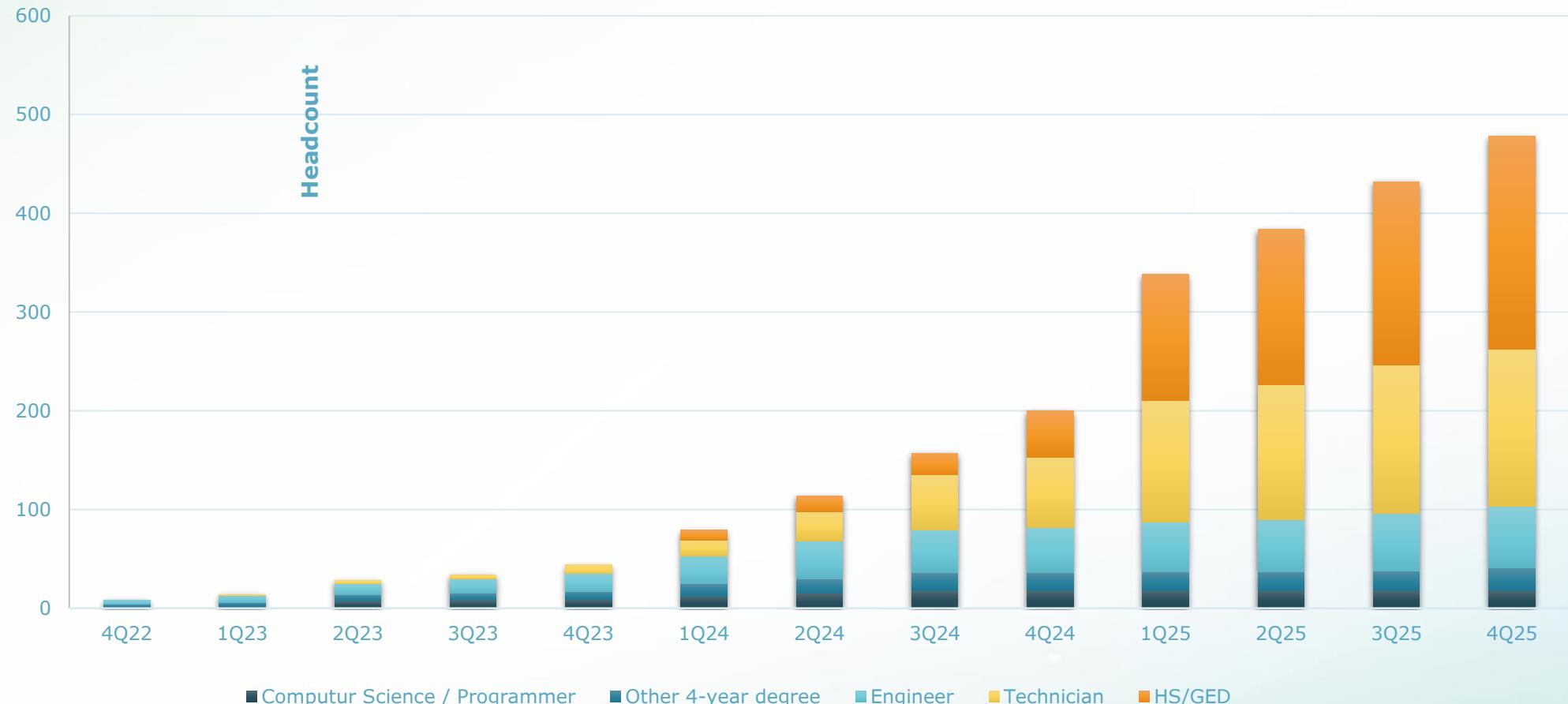
## Extra Slides



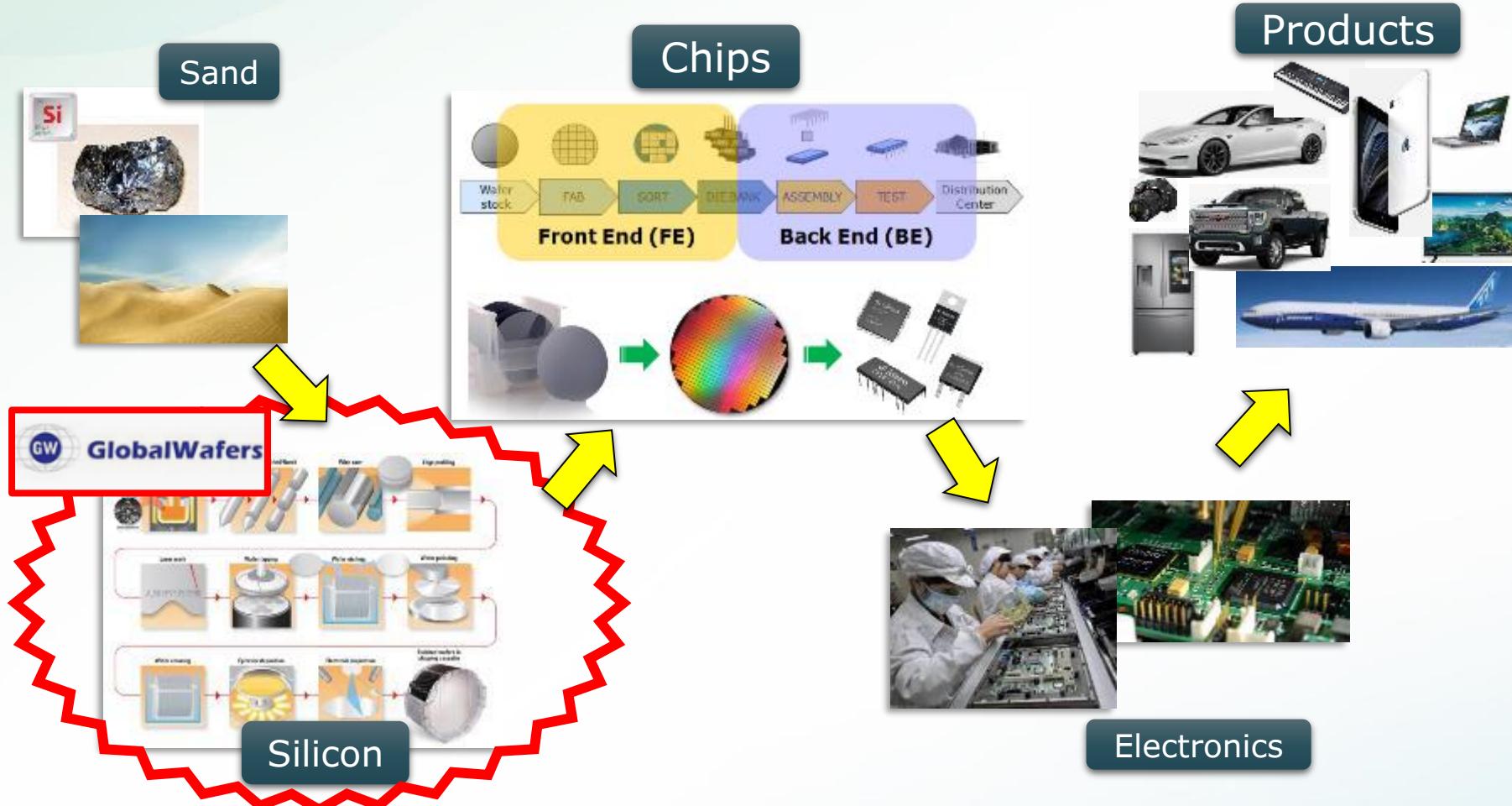
Learn More on  
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# Global Wafers America Workforce Needs to 2025

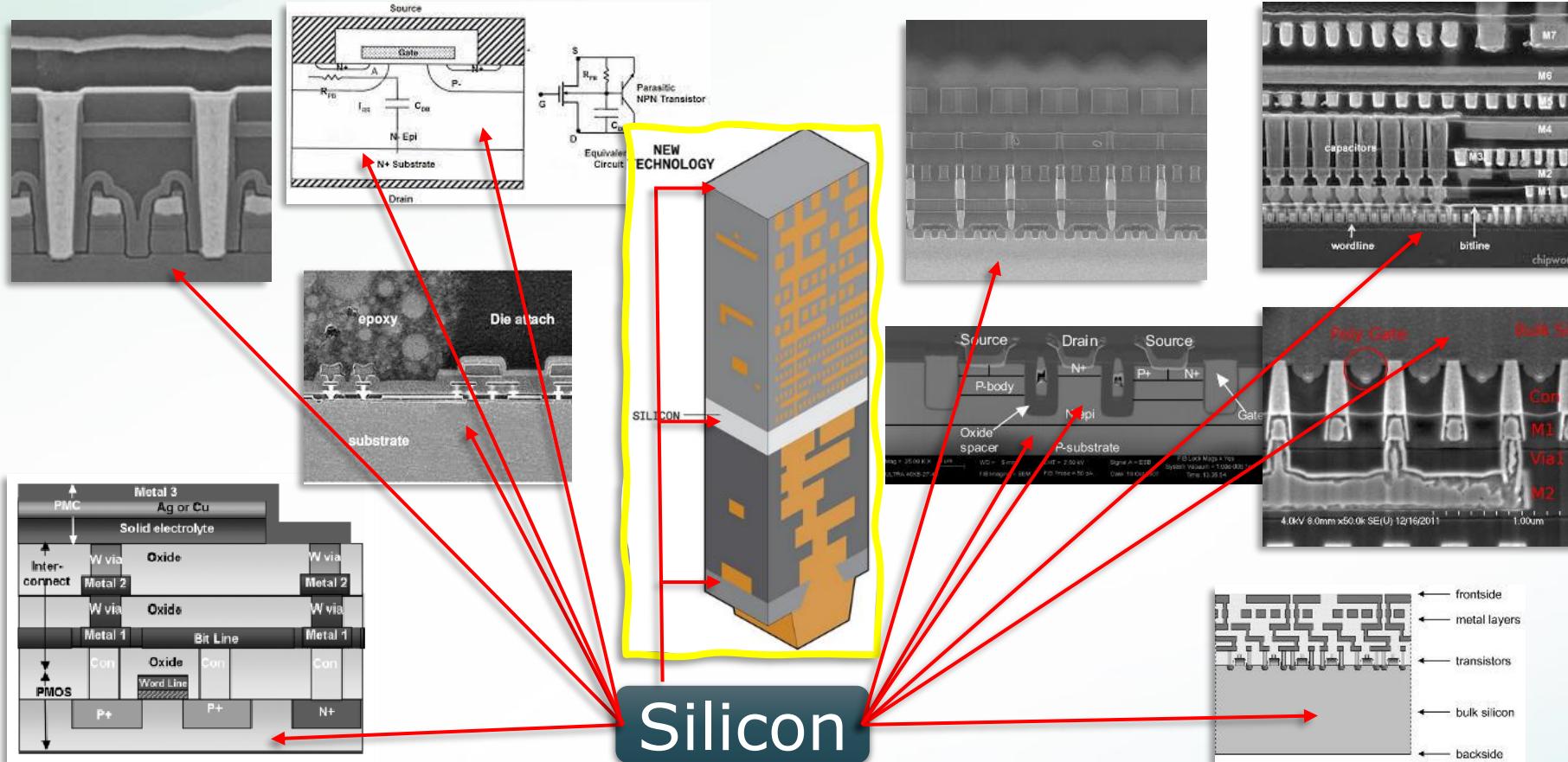


# How Does Silicon Affect Chip Shortage?



- Silicon is the integral component of the semiconductor supply chain
- All 300mm FABs purchase silicon wafers with >96% sourced outside of the US

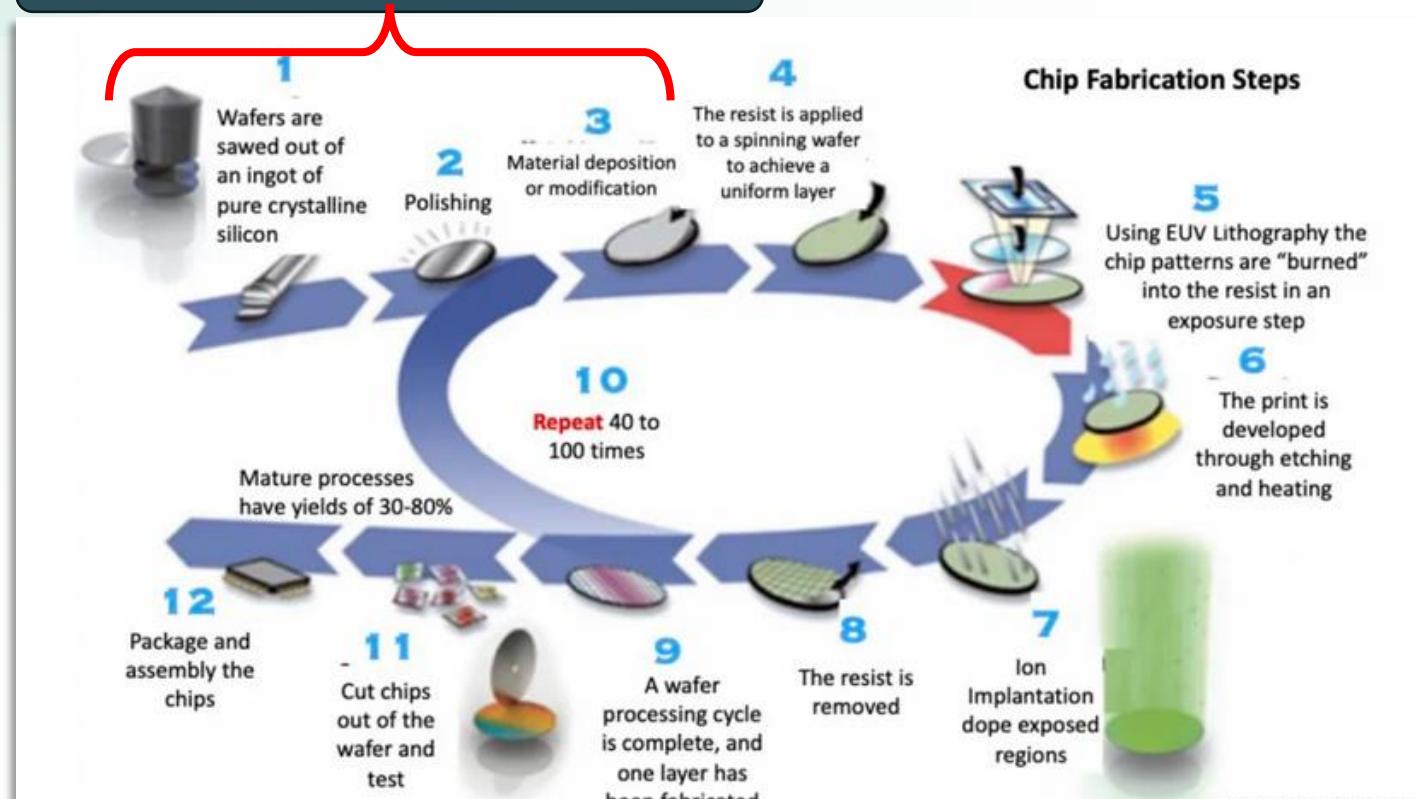
# Silicon – The Semiconductor in the Chip



- The Chips are not built on silicon, they are built in the silicon
- The silicon is the indispensable semiconductor material that make transistors possible
- The latest generation nodes from Intel & TSMC require 3 layers of silicon

# Silicon in the Chip Process

## Silicon Wafer Manufacturing



Major production steps in the semiconductor value chain Source: <https://steveblank.com/>

- There is no clear delineation from the wafer fabrication to the chip fabrication
- The silicon wafer manufacturing is the first steps of chip fabrication

# GWA Investment Commitment



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September 1, 2022 at 9:00 AM EDT

## Micron to Invest \$15 Billion in New Idaho Fab, Bringing Leading-Edge Memory Manufacturing to the US

First new memory fab in the U.S. in 20 years will create an estimated 17,000 new American jobs

BOISE, Idaho, Sept. 01, 2022 (GLOBE NEWSWIRE) -- Micron Technology, Inc. (NASDAQ: MU), one of the world's largest semiconductor companies and the only U.S.-based manufacturer of memory, today announced plans to invest approximately \$15 billion through the end of the decade to construct a new fab for leading-edge memory manufacturing in Boise, Idaho. This will be the first new memory manufacturing fab built in the U.S. in 20 years, ensuring domestic supply of leading-edge memory

NEWS | TEXAS-Louisiana | TEXAS & LOUISIANA CONSTRUCTION NEWS | POWER & INDUSTRIAL

Manufacturing

## \$6.5B Texas Instruments Fab Could Be First of Four Totaling \$30B

By James Leggate

Texas Instruments has plans to build as many as four semiconductor chip fabrication plants in Texas, at a cost totaling nearly \$30 billion. Work on the first plant broke ground last month.



MAY 19, 2020

## TSMC brings 1,600 jobs to Arizona with new \$12B factory

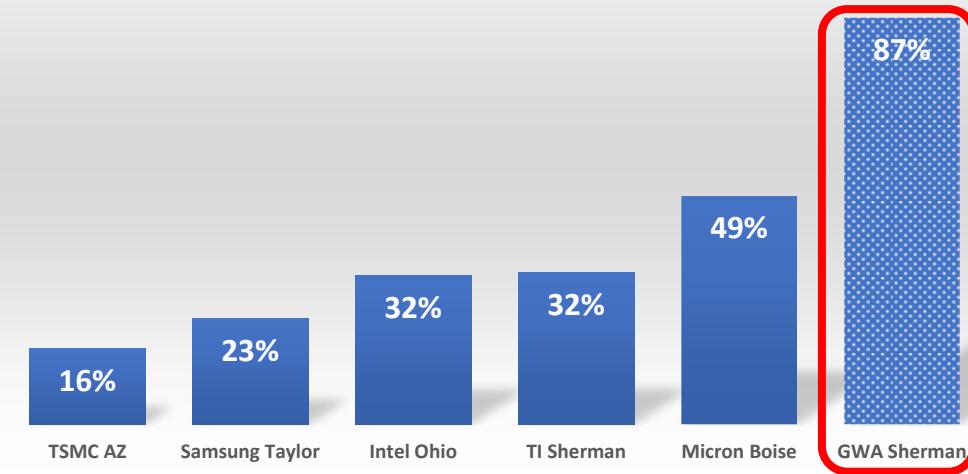
Advanced Manufacturing

## Samsung Picks Texas for \$17B Semiconductor Plant



### US CHIPS Investment Ratio

(Act CAPEX / Annual Revenue)



- US expansion announcements are dominated by multi-billion dollar FABs
- For actual investment committed now (Act CAPEX), GWC's initial \$2B of \$3.5B project is by far a higher ratio...and higher risk
- Silicon wafer manufacturers' CAPEX includes the same clean rooms, automation, advanced metrology, cleaning, packaging, etc as FABs, but generate only a fraction of the revenue and margin