

Innovating in the MEMS Foundry Business



Kara Zappitelli, Ph.D.
Foundry Director
Science Foundry



Scott Smyser
VP Sales
Science Foundry

Webinar
Feb 12, 2025
8:00 - 9:00am PT



- **SEMI & MSIG Introduction**

- Paul Carey, MSIG Director
[~5 minutes]



- **Science Foundry:**

- Kara Zappitelli & Scott Smyser
[~40 minutes]



- **Audience Polling and Q&A**
[5 minutes]

- **MSIG Closing [5 minutes]**



SEMI & MSIG Overview

Paul Carey, Ph.D.
Director SEMI MSIG

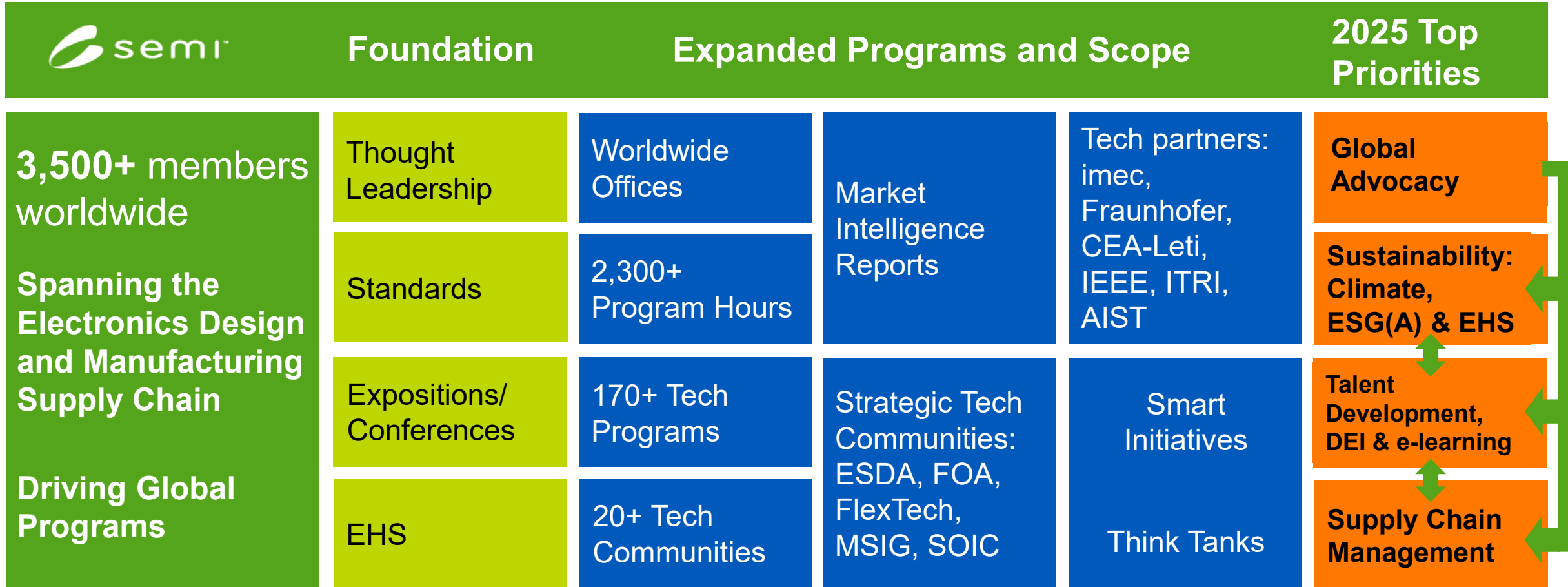
February 2025

SEMI

SEMI® connects 3,500+ member companies and 1.3 million professionals globally, driving advancements in the end-to-end electronics design and manufacturing supply chain.

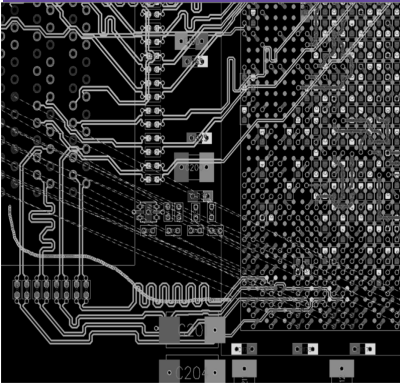
SEMI members innovate in materials, equipment, software, devices, and end-market applications, enabling smarter, more affordable electronic products.

SEMI is Uniquely Positioned to Address the Semiconductor Industry's Top Challenges that Require Global Collaboration



Market Reports/Databases

Electronic Design



- Electronic Design Market Data

Fab/Foundry



- World Fab Forecast
- World Fab Watch
- FabView

- Foundry Fab Forecast Planned - H2 '25
- 300mm Outlook
- 200mm Outlook
- Power and Compound Semiconductor Outlook
- MEMS/Sensor Fab Outlook

Equipment Market



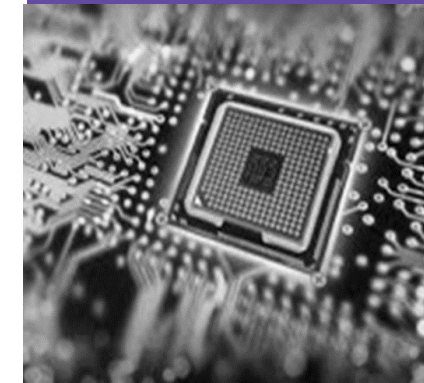
- Equipment Market Data Subscription (EMDS)
 - N.A. Billing Report
 - WWSEMS
 - Consensus Equipment Forecast
- Semiconductor Manufacturing Monitor

Materials Market



- Material Market Data Subscription (MMDS)
- Photomask Characterization Report
- Silicon Wafer Monitor

Specialty/Regional



- Global Semiconductor Packaging Materials Outlook 2024 Published
- WW Assembly & Test Facilities Next Update Q2 '25
- Mass Flow Controller



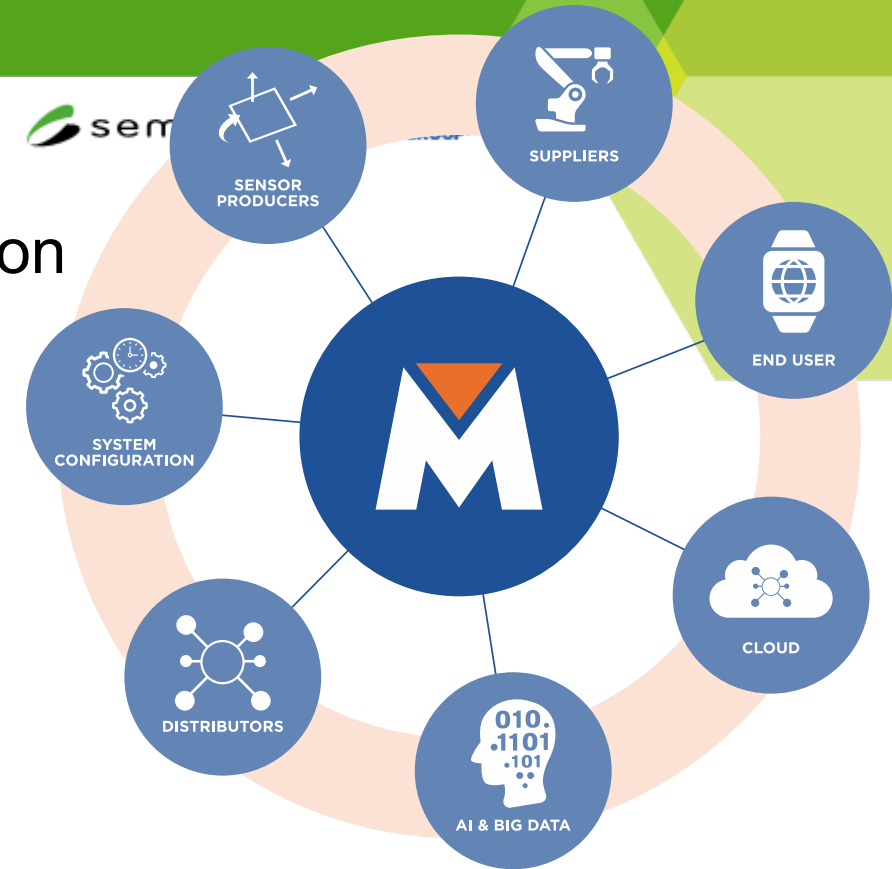
■ SEMI

- **The** premier global semiconductor trade organization
- 3500+ member companies
- Your gateway to the semiconductor supply chain



















■ MEMS and Sensors Industry Group (MSIG)

- Technical Community within SEMI
- 200+ member companies worldwide
 - *Members connected to the sensor supply chain*
- Mission - Support member company growth with:
 1. Education and Networking (*conference & events*)
 2. Promotional opportunities (*SEMI blogs, webinars, social media*)
 3. Collaborative problems solving (*industry task forces and workgroups*)
 4. R&D funds (*\$25M 2022-2027 in positioning, navigation, and timing sensors*)
 5. New opportunities and markets (*e.g. BusDev in Smart Cities*)



MSIG website: msig.org

2025 SEMI & MSIG Program Calendar

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
MSIG GC		MSIG GC Meeting			MSIG GC Meeting			MSIG GC Meeting			MSIG GC Meeting	
SEMI MSIG PNT R&D Program	5 YEAR (2022-2027), \$25M Positioning, Navigation, and Timing (PNT) R&D Funding Program Activities: Gap Analysis Workshops, RFPs, Proposal Ranking, Awards, Quarterly Project Reviews											
Community Engagement & Promotion		Quarterly Newsletter			Quarterly Newsletter			Quarterly Newsletter			Quarterly Newsletter	
		MSIG Webinar	MSIG Webinar		MSIG Webinar		MSIG Webinar	MSIG Webinar			MSIG Webinar	MSIG Webinar
Monthly Device, Manufacturing, Reliability, Smart City Workgroup Meetings, MSIG Promotion, Outreach, Blogs and Happy Hours												
MSIG Events			 March 26-27 Georgia Tech						 September 17-18 SEMI Headquarters (Milpitas, CA)	 MSIG SEMICON West Stage & Reception Oct 8 Phoenix, AZ	 Nov 19 Munich, Germany	
MSIG Outreach Events			 March 30 – April 2 Shenzhen		 June 24-26 Santa Clara	 ORLANDO, FLORIDA 29 JUNE - 3 JULY, 2025 June 29 – July 3 Orlando, FL			 October 20-24 Suzhou, China			
SEMICON Events		 Feb 19-21 Seoul, Korea	 Mar 26-28 Shanghai, China		 May 20-22 Singapore				 Sept. 10-12 Taipei, Taiwan	 October 7-9 Phoenix, AZ	 Nov 18-21 Munich, Germany	 Dec 10-12 Tokyo, Japan
									 Sept 1-3 Greater Noida, Delhi, India			



MEMS & SENSORS TECHNICAL CONGRESS—MSTC 2025

March 26-27, 2025

Georgia Institute of Technology, Atlanta, Georgia

March 26-27, 2025 | Georgia Institute of Technology | Atlanta, GA

PARTICIPATING COMPANIES INCLUDE:



And Over 180 More Companies!

Join Us! Email to msig@semi.org



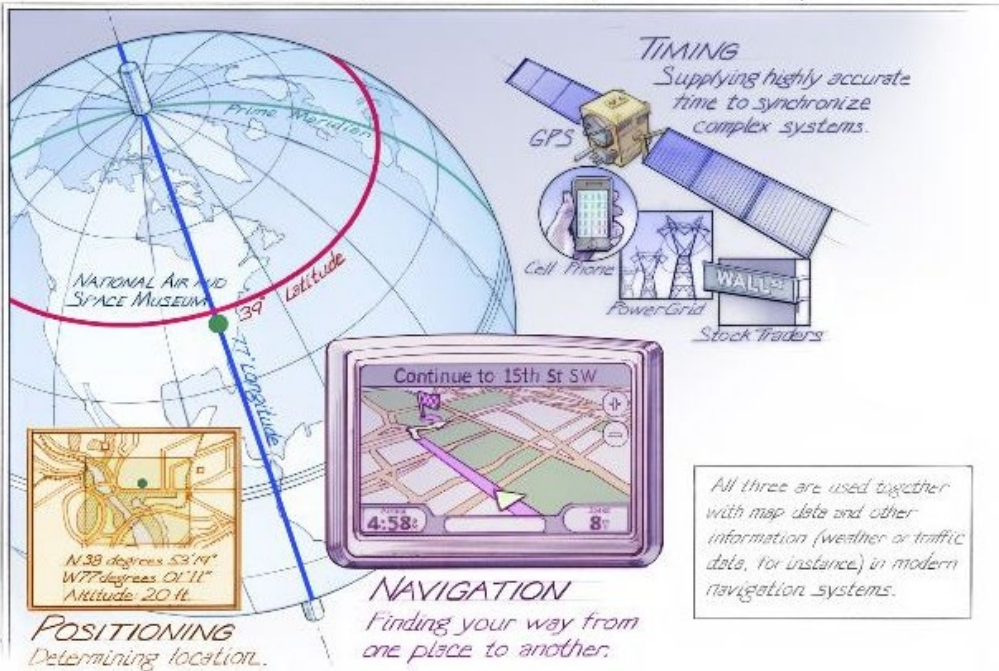
MSIG R&D Funding

SEMI MSIG PNT R&D Program: (Partner is ARL)



PNT: Positioning, Navigation, and Timing - dual use technology good for both private and public sectors

PNT (POSITIONING, NAVIGATION, AND TIMING)



PNT R&D Thrust Areas:

- Thrust Area 1:** Novel Materials, Fabrication, Testing, and Packaging Techniques for Low-SWaP Inertial and PNT Sensors
- Thrust Area 2:** Advanced Active and Passive Integrated Photonics for Low-SWaP Atomic Clocks, Quantum Systems, and PNT Sensors
- Thrust Area 3:** Advancements Towards Low-SWaP, GPS-Free PNT Technologies

PNT Program Overview:

- Key Program Dates:
 - Start: 2020
 - Current Contract: 2022-2027
- Total Funding to date:
 - SEMI: **\$14.1M**
 - SEMI + Cost Share: **\$32.5M**
- Total # Projects to date: **28**
- Total # Unique Subawardees:
 - Primes: **14**
 - Subrecipients: **9**
 - Subcontractors: **17**
- PNT Governing Council (GC) and Technical Advisory Council (TAC):
 - GC (5): ADI, NXP, Teledyne, Northrop Grumman, GE Aerospace
 - TAC (3): SoftMEMS, GE, PNI Sensor
- Total # PNT Consortium Members: **> 150**

SEMI-MSIG PNT Funded Institutions

Item	Phase I (2020-2022) - FT19			Phase II (2022-2027) - PNT22					
				YEAR 1 (RFP June 2022)			YEAR 2 (RFP October 2023)		
	Lead	Subrecipient	Subcontractor	Lead	Subrecipient	Subcontractor	Lead	Subrecipient	Subcontractor
1	GE Research		Axus, GE Aviation, Inertial Wave	PARC	EPFL		Forge Nano	GE	SoftMEMS
2	PARC	EPFL	AFRL	Honeywell (IMU Calibration)			Infleqtion	UCSB	ARL
3	Teledyne Scientific CSAC			Honeywell (3D Package)			Georgia Tech		Disco, II-VI, EVG, Plasma-Therm, Axus, SoftMEMS, StethX, ARL
4	Georgia Tech		Axus, Disco, EVG, II-VI, Semilab, SAMCO, SPTS, StethX	Nexus Photonics	Vapor Cell Technologies		Teledyne Scientific (Trimming)	Teledyne MEMS	
5	Analog Devices		Toyon, Asygn	ColdQuanta/Infleqtion	UCSB, Morton Photonics	ARL	SRI	EPFL, DRS Daylight Solutions	
6	SiTime		Bosch	Georgia Tech		Disco, II-VI, EVG, SPTS, Plasma-Therm, Axus, SoftMEMS, StethX, Uyemura	Honeywell		
7	Teledyne Scientific IMU		Inertial Wave	GE Research		SoftMEMS	Analog Devices		
8	Carnegie Mellon			Teledyne Scientific	Teledyne MEMS, InertialWave		Teledyne Scientific (CSAC)		
9	Twinleaf	Photodigm		Purdue	Anello Photonics		GE Research PDK		SoftMEMS
10	Honeywell								



Back to Today's Webinar

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[~5 minutes]



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[~40 minutes]
- **Audience Polling and Q&A**
[5 minutes]



- **MSIG Closing** [5 minutes]



**Get Ready to do
some polling!**


Scan this QR code
to join →

**Enter your email and
you're ready to do
some polling!
Hit the "Join" button**



1



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Questions?

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[~5 minutes]



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MEMS & SENSORS TECHNICAL CONGRESS—MSTC 2025

March 26-27, 2025

Georgia Institute of Technology, Atlanta, Georgia

March 26-27, 2025 | Georgia Institute of Technology | Atlanta, GA

THANK YOU





Paul Carey
MSIG Director





Questions?
Email me:
pcarey@semi.org

2024 MSIG Global GOVERNING COUNCIL (Strategy)

 **BOSCH**
Invented for life


Chair
Stefan Finkbeiner
Bosch Sensortec


Vice-Chair
Lorie Burmood
NXP






Bassam Saadany
Si-Ware Systems






David Kirsch
EV Group




Mary Ann Maher
SoftMEMS




Mark Ding
United Pioneering
Services




Claude Jean
Teledyne DALSA





**CalTexan
Tech**


Craig Ensley
CalTexan
Technologies


Sean Ding
Vanke




Anton Hofmeister
STMicroelectronics




Jessica Gomez
Rogue Valley
Microdevices




Len Sheynblat
Qualcomm




Bernhard Straub
Infineon




Terence Gan
Institute of
Microelectronics






Becky Oh
PNI Sensor
Corporation




Sean Kim
LG Electronics




Sabah Sabah
Analog Devices



Based in Asia

Based in Europe

Based in N. America

Polling Results

Get Ready to do some polling! You can still do the poll if you are watching the recording, so join now!

Scan this QR code
to join →

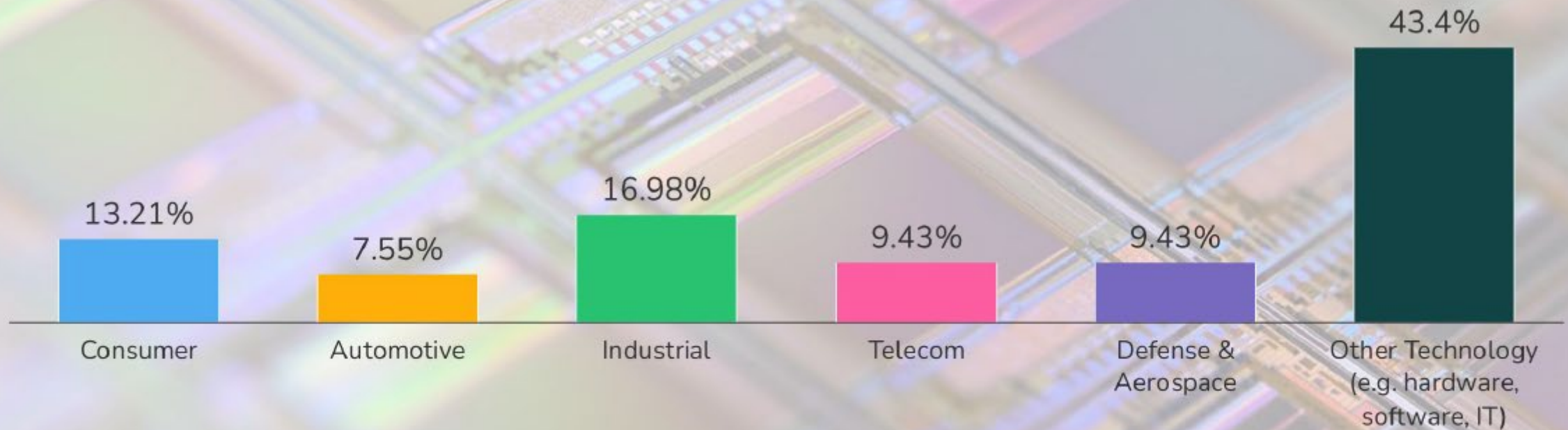
**Enter your email and you're ready to do some polling!
Hit the "Join" button**



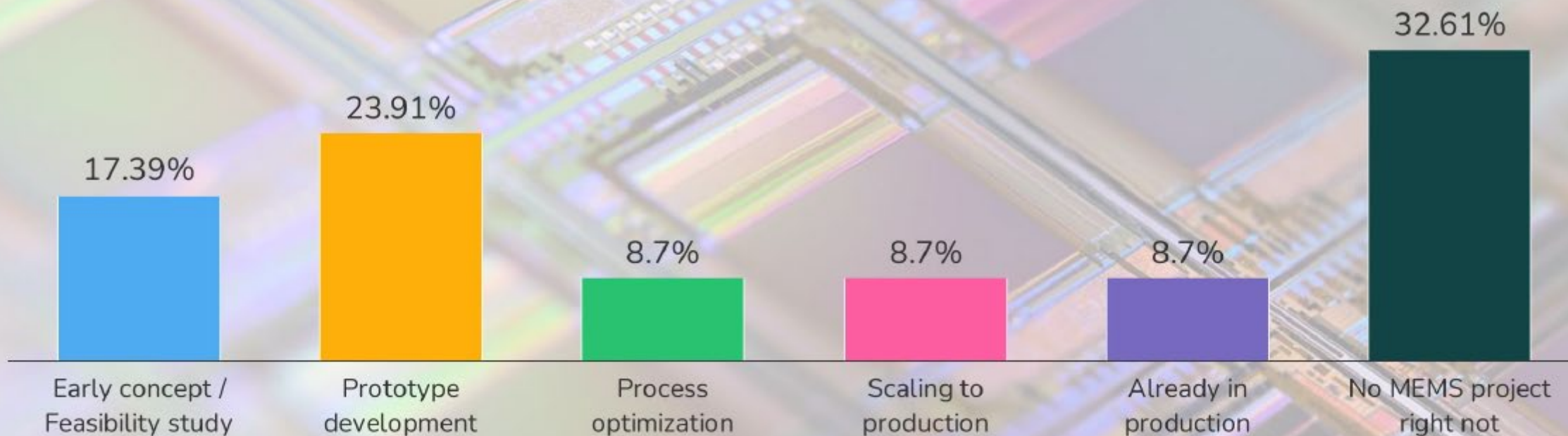
In which US State (or foreign country) are you attending this webinar?



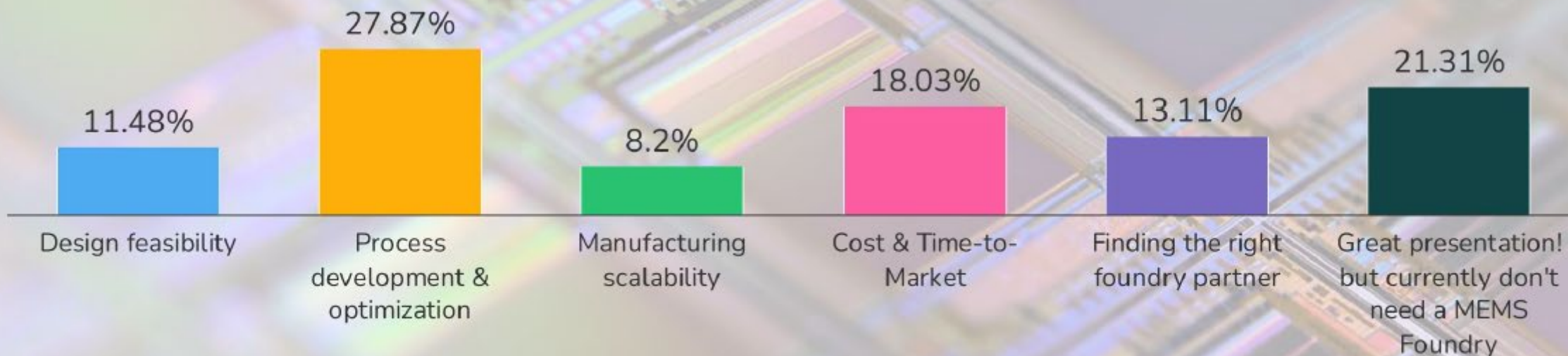
What industry best describes your company?



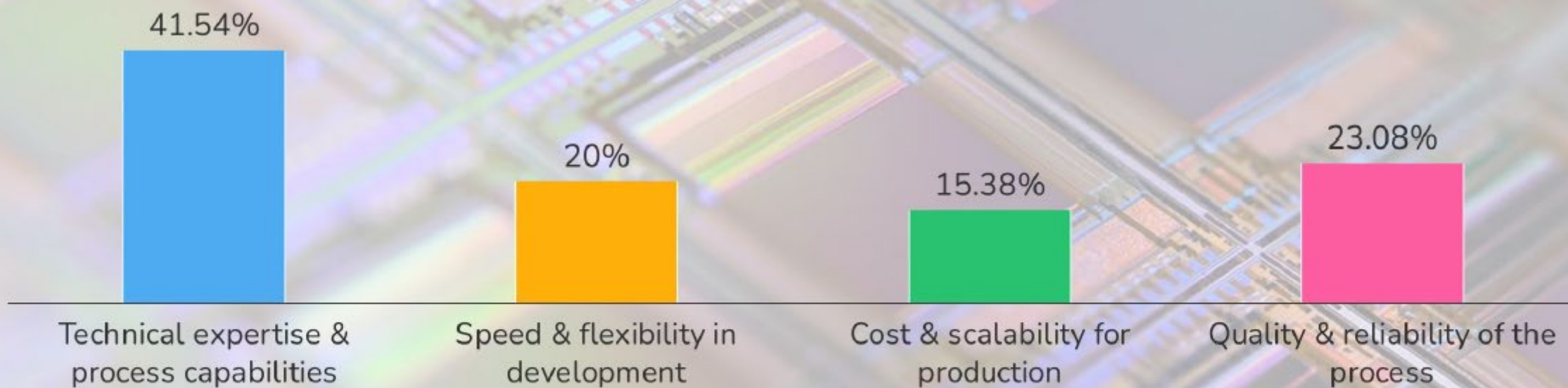
What stage is your current MEMS project in?



What is your biggest challenge in MEMS development today?



What is the most important factor when selecting a MEMS foundry partner?

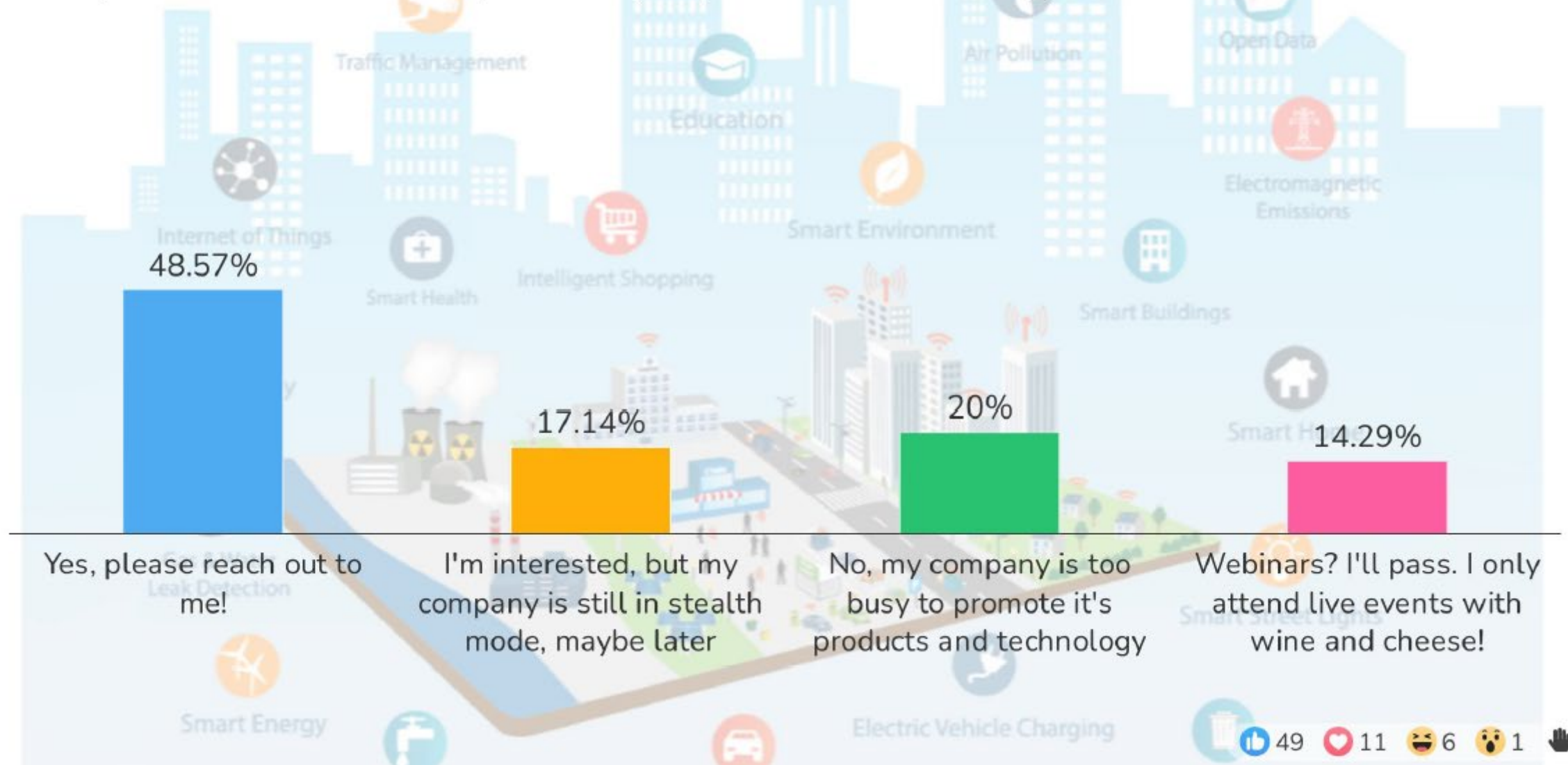


I want to know more about Science Corporation's Foundry Business!



SMART CITY

SEMI MSIG online webinars help companies get the word out to hundreds of viewers.
Would you like to learn how your company can take advantage?





Thank you!