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Smart MedTech, a SEMI Global Initiative

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November 12-15, 2024



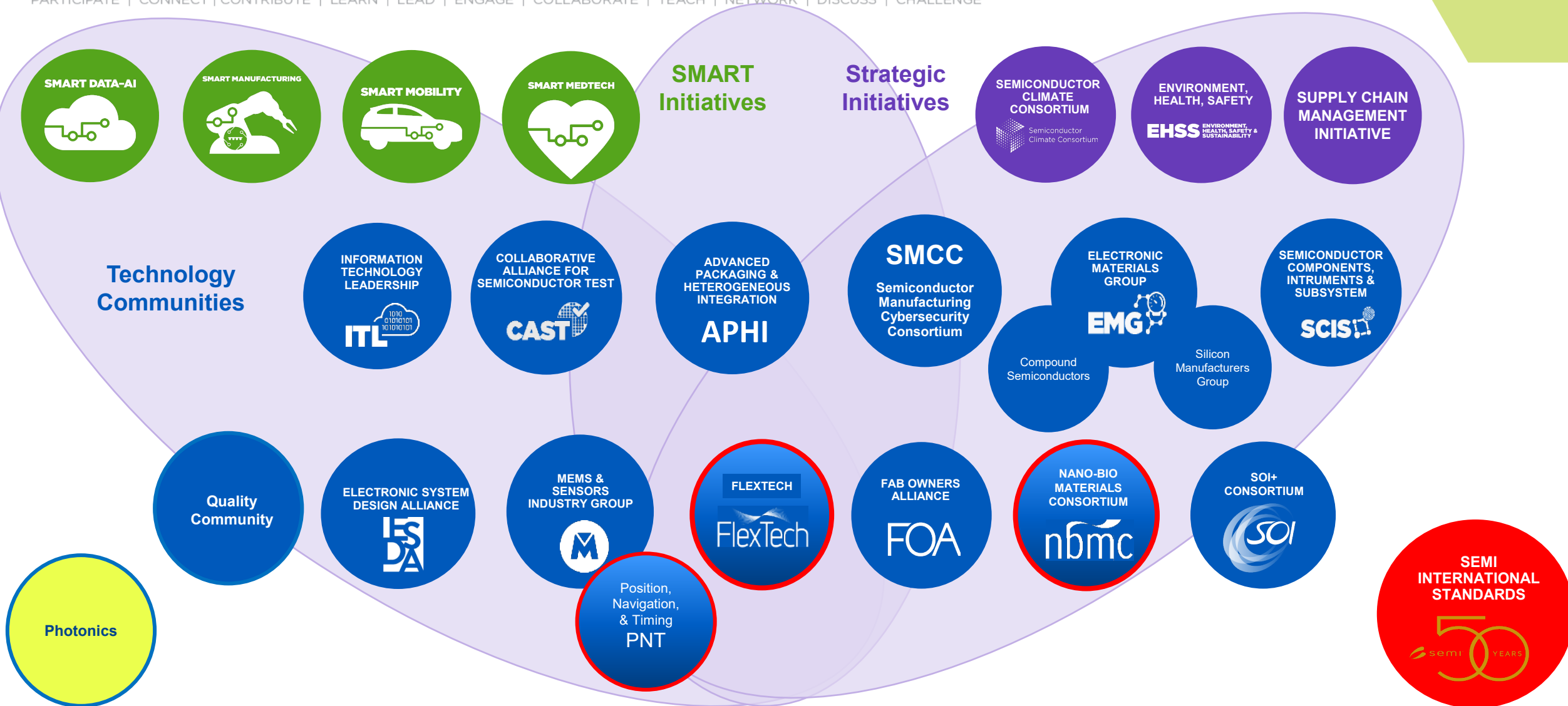
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SEMI Technology Communities



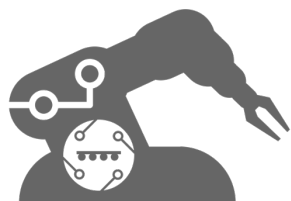
PROVIDING TECHNOLOGY STEWARDSHIP & COLLABORATION ACROSS THE ECOSYSTEM

PARTICIPATE | CONNECT | CONTRIBUTE | LEARN | LEAD | ENGAGE | COLLABORATE | TEACH | NETWORK | DISCUSS | CHALLENGE



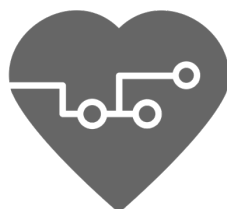
Smart Initiatives Provide Platforms for Thought Leadership, Industry Alignment and Standards

SMART MANUFACTURING



Clears barriers to adoption and speeds time-to ROI for Industry 4.0 manufacturing technology deployment

SMART MEDTECH



Bridges the gap between semiconductor engineering and the life sciences disciplines

SMART DATA-AI



Assures that members capture full value in the Intelligent Future

SMART MOBILITY



Synchronizes automotive electronics supply chain for a safer, sustainable and equitable mobility ecosystem

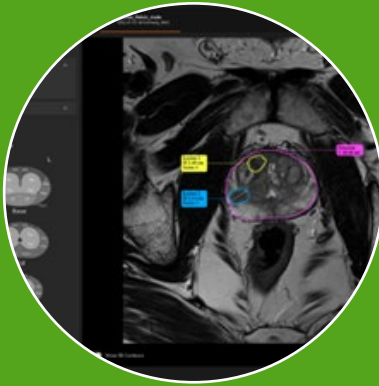
Smarter Technology Collaboration Across Fast-growing Vertical Market Segments

The Biggest Healthcare Trends of the Next 10 Years by Forbes

August 6, 2024



- Bioprinting – Organs on Demand
 - 3D printing beyond today's simple tissues and cartilage
- The Gene Genie
 - Genomics and applies gene editing to eradicate common diseases like hereditary cystic fibrosis.
 - Combined with personalized medicine to tailor to individual genetic make-ups
- The Virtual Healthcare Revolution
 - AI-driven predictive healthcare for prevention and diagnosis
 - Combined with AR/VR and accurate digital twins of the patient
- The Changing World
 - Healthcare to cope with environmental, societal and demographic changes
 - Aging populations, changes in birth rates, food and water availability
- Approaching Immortality
 - Genetic engineering, stem cell science, or perhaps nanotechnology



Siemens Healthineers AI in Radiology

- * Maximize productivity
- * Promote standardization
- * Increase clinical confidence



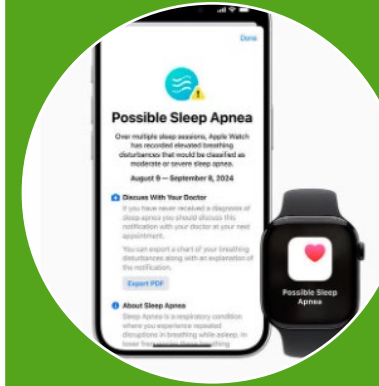
Oura Ring

HR, SpO2, VO2, T
Built-in AI-powered
advisor (sleep, stress,
exercise)



Samsung Galaxy Watch Ultra

Analyzing biometric data
via AI to deliver an
energy score



Apple watch 10

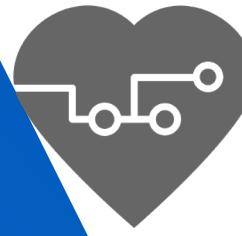
FDA cleared
AI-enabled sleep apnea
detection

- * Breathing motion disturbance
- * Heart rate
- * Temperature

AI Enabled



SMART MEDTECH



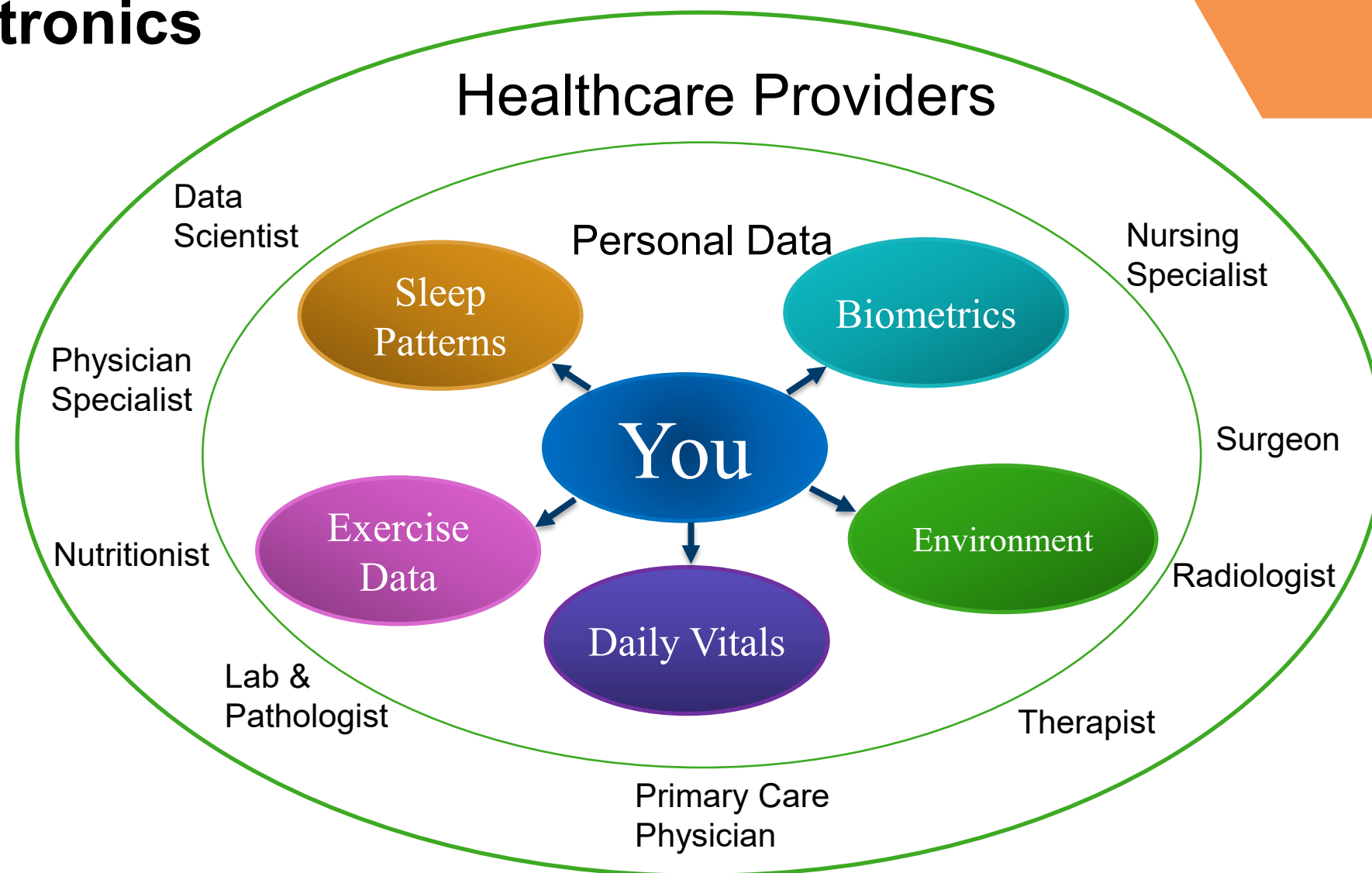
- The Healthcare Revolution will shift from provider-centric to a personalized care model that is
 1. Outcome-based
 2. Decentralized, not limited by geography
 3. Specific to your personal health and medical needs
 4. With a team of providers connected like never before
- Success will be critically dependent upon microelectronics and related technology
- 3 pillars of the Smart MedTech initiative at SEMI:
 1. INNOVATE: Funded R&D Platform
 2. CONNECT: An Industry Event Platform
 3. EDUCATE: An Educational Platform



Digital Healthcare Enabled by Microelectronics

A Seismic Shift

- Outcome-based
- Decentralized healthcare
- Large population database
- Personalized medicine
- Providers connected like never before



INNOVATE



> \$57M combined U.S.
federal and industrial
investment in medtech
innovation since 2019



> 20 subawards



> 100 member companies
and universities collaborating
today

CONNECT



SEMICON West

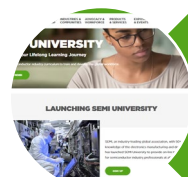


SEMICON Europa

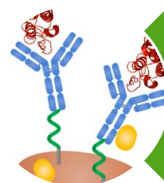


SEMICON Southeast Asia

EDUCATE



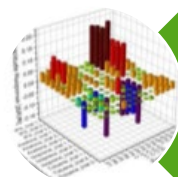
SEMI U est. Feb 2023
SEMI University | Semiconductor Training & Online Courses



Fundamentals of Electrochemical, Aptameric-based Sensors



Perspectives on Biosensor Applications



Biohybrid Sensing Systems for Volatile Organic Compounds

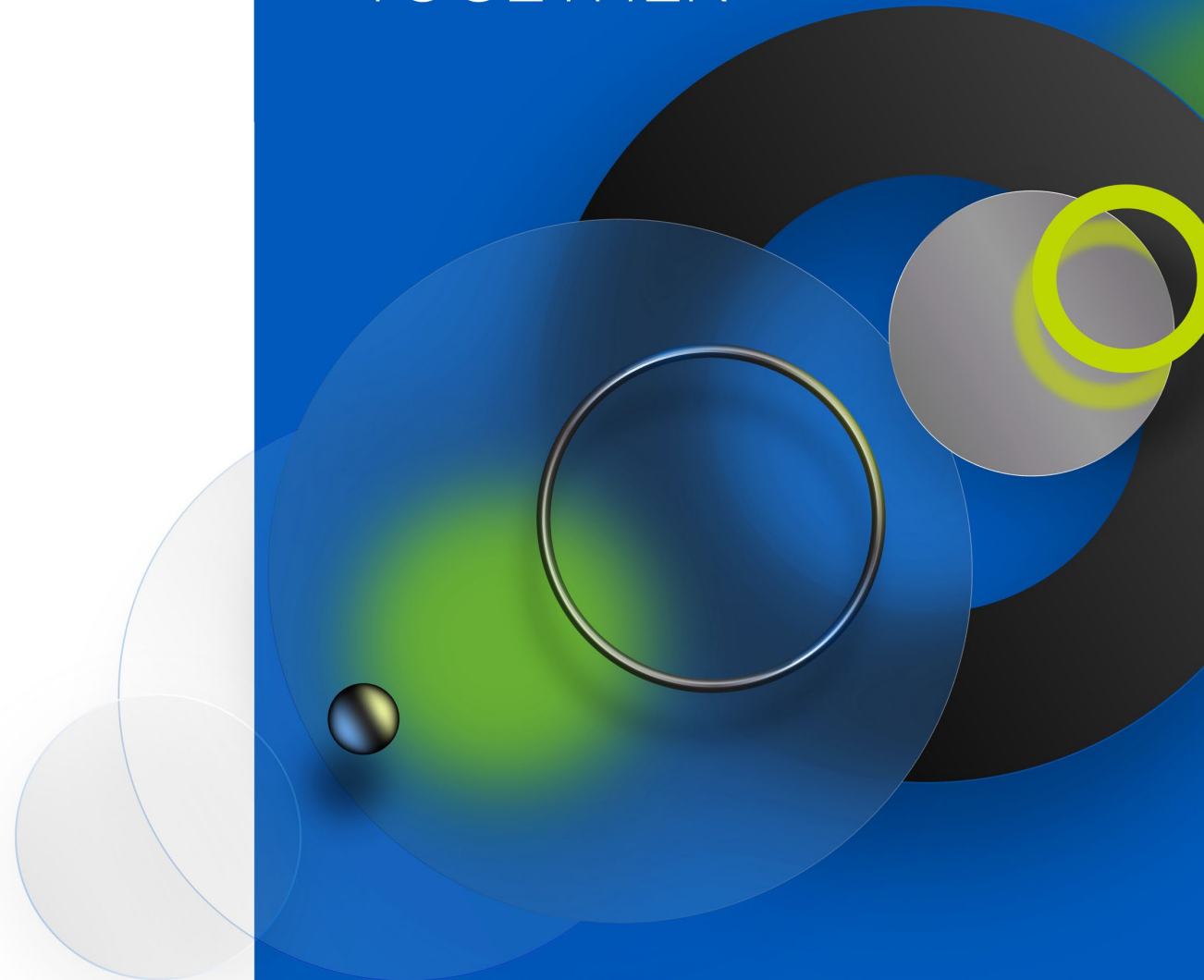


AI Litigation Risks for the Medical Technology Industry

Expanding the Scope



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SMART MedTech

Vision

- Revolutionize global healthcare through innovation and democratization, pioneering advances in preventative care

Mission

- To lead the convergence of the semiconductor and medical industries, bridging life sciences and engineering together to transform healthcare. Focusing on wearables, AI, and commercialization strategies, SMART MedTech aims to democratize healthcare access and reduce costs through preventative solutions. Central to this transformation are microelectronics and associated technologies. Through collaboration with regulatory bodies, industry leaders, and academia, SMART MedTech drives technology development and market adoption to enhance healthcare accessibility.

Value Proposition

- Bridging the gap between microelectronics and medical industry to facilitate collaboration and innovation.
- Lowering healthcare costs through efficiency and optimization strategies.
- Leveraging collaborative partnerships across industries, academia, and regulatory bodies to accelerate technology development and transition.
- Enhancing accessibility to healthcare and empowering individuals through digital solutions.
- Fostering technology advancement and adoption to drive better health outcomes.

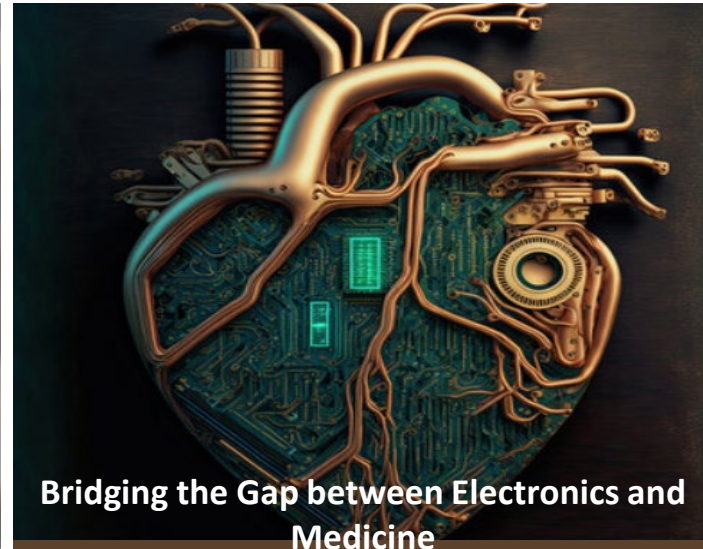


To participate or get more information on the working groups contact me at smartmedtech@semi.org



Supply Chain & Emerging Technology Working Group

- Risk management for geopolitical or regional disruptions
- The traceability of subsystems and components in medical electronics devices
- Mapping existing supply chain to identify pain points



Bridging the Gap between Electronics and Medicine

Working Group

- Address wearable adoption challenges to expand preventive care access, particularly for underserved population
- Facilitate collaboration between microelectronics, the medical industry, and regulatory bodies through joint forums to drive innovation
- Standards e.g. develop communication standards for body-worn devices (in or on the body) and streamline data integration into healthcare systems



Role of AI In MedTech Working Group

- Leverage AI to enhance diagnostics, personalized treatment, remote monitoring, communication, and operational efficiency
- Implement Ethical AI practices by ensuring transparency, data privacy & security, bias mitigation, promoting accountability and accessibility, and regulatory implementation

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Thank You For Your
Attention

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