



# **iNEMI**

International Electronics Manufacturing Initiative

## ***iNEMI 2009 Roadmap Process Overview***

**Chuck Richardson  
Productronica  
November 14, 2007**

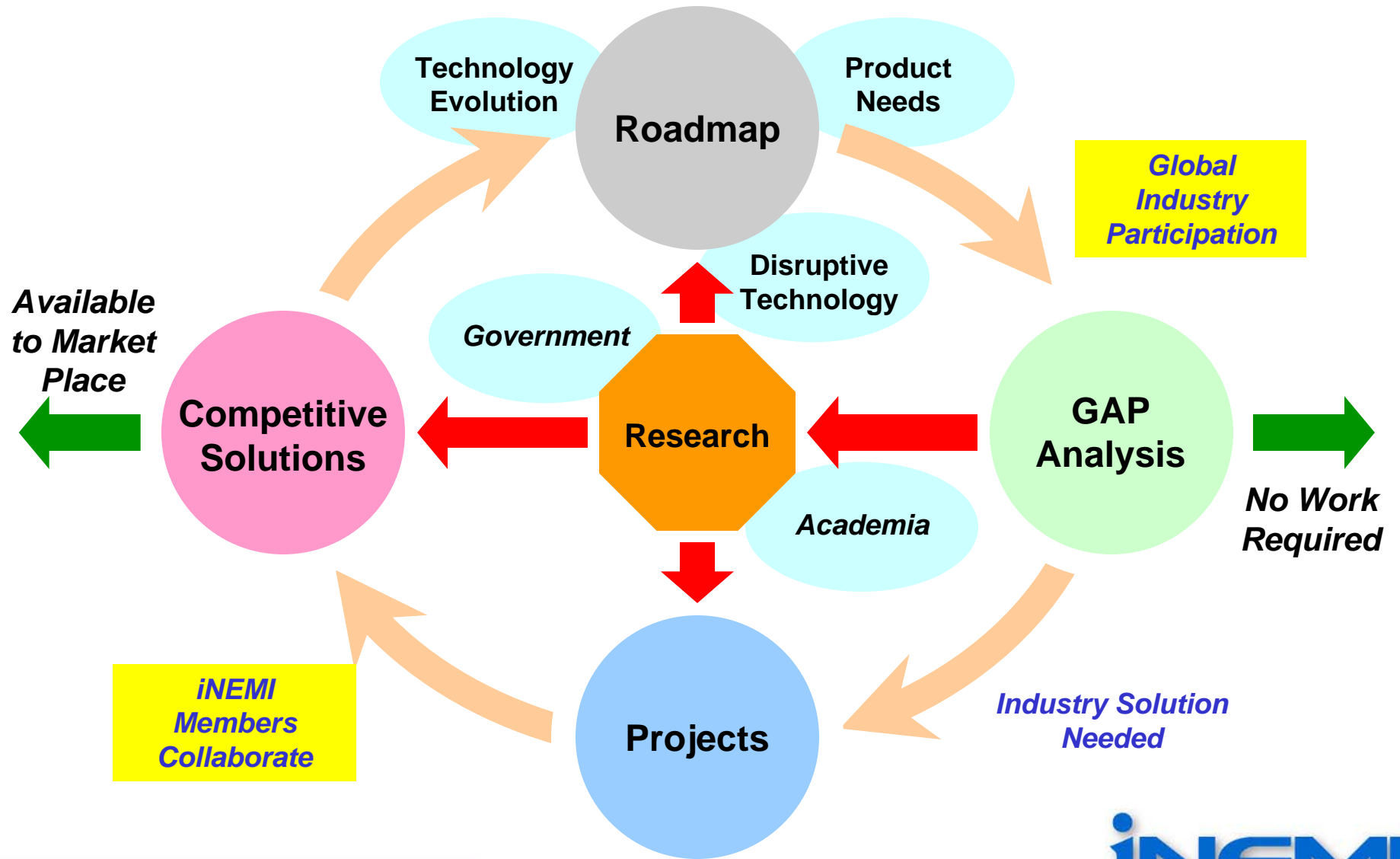
**Advancing manufacturing technology**

# Some Definitions...

- **TWG - Technical Working Group**
  - Develops the roadmaps
  - Presently 20 groups
- **TIG - Technology Integration Group**
  - Develops technical/strategic Plan
    - Identifies project priorities:
      - Based on roadmap findings and gap analysis meetings
      - Acts as a Program Administrator for iNEMI projects
- **PEG – Product Emulator Group**
  - “Virtual Product”: future product attributes plus key cost and density drivers
    - Portable / Consumer
    - Office / Large Business Systems
    - Netcom Systems
    - Medical Products
    - Automotive
    - Defense and Aerospace



# Methodology



## Statistics for the 2007 Roadmap

- **> 560 Participants**
- **> 265 Companies/organizations**
- **17 Countries from 4 Continents**
- **19 Technology Working Groups (TWGs) (added Organic & Printed Electronics)**
- **5 Product Emulator Groups (PEGs)**
- **Over 1300 Pages of Information**
- **Roadmaps the needs for 2007-2017**
- **> 100 Research Needs Identified**
- **>150 Technical Gaps Identified**

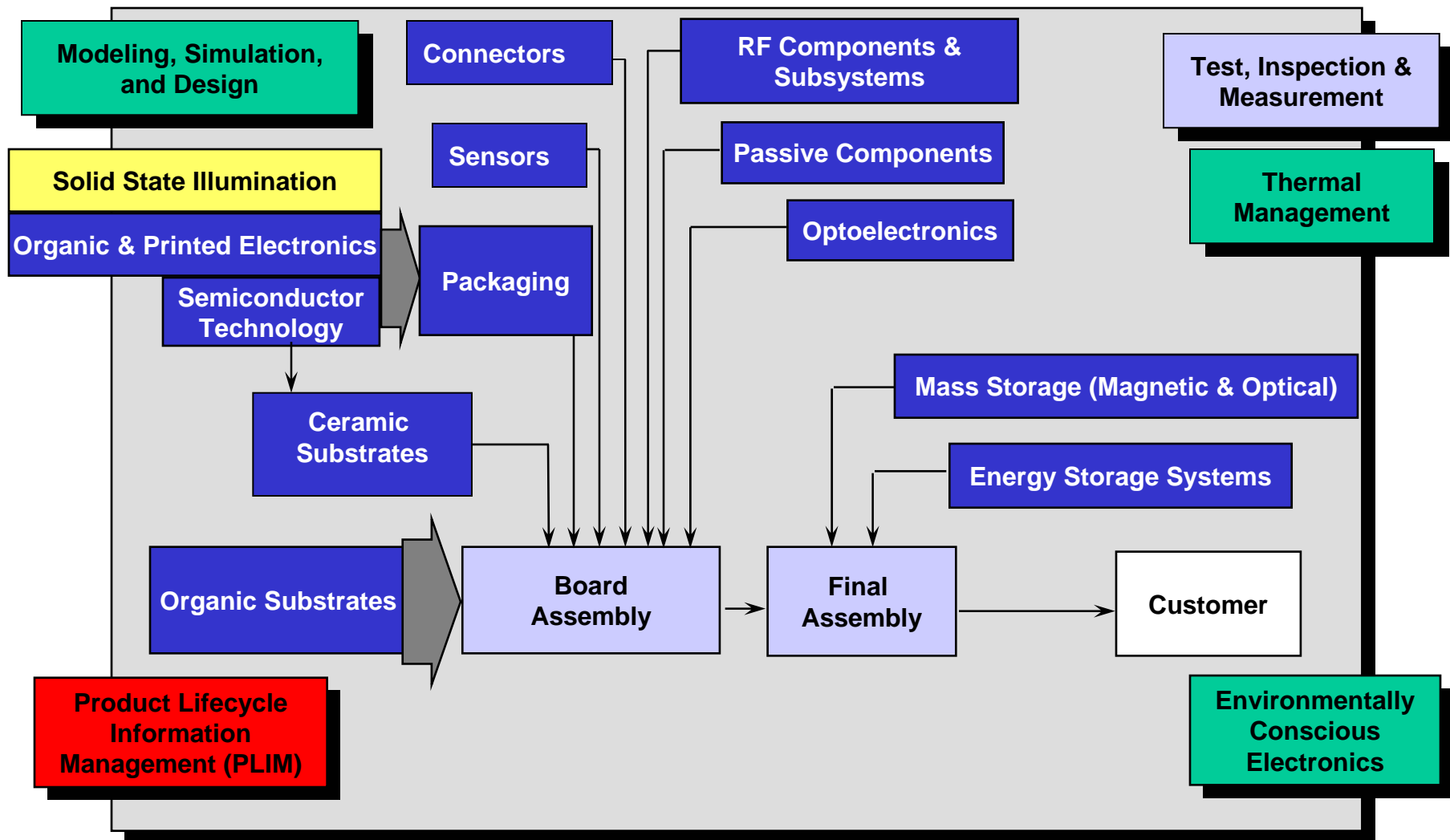
# International Roadmap Workshops

- **Gain Additional Participation by holding regional workshops in Asia, Europe, and North America.**
  - **Asian Workshop held in conjunction with HDP '06 Conference at Shanghai University.**
  - **European Workshop held in conjunction with Semicon Europa at Messe Munchen.**
  - **North American Workshop held at iNEMI Headquarters in Virginia.**
- **Goal of increased participation achieved!**
- **Laying foundation for further participation on future cycles.**

# 2008-9 iNEMI Roadmap Goals

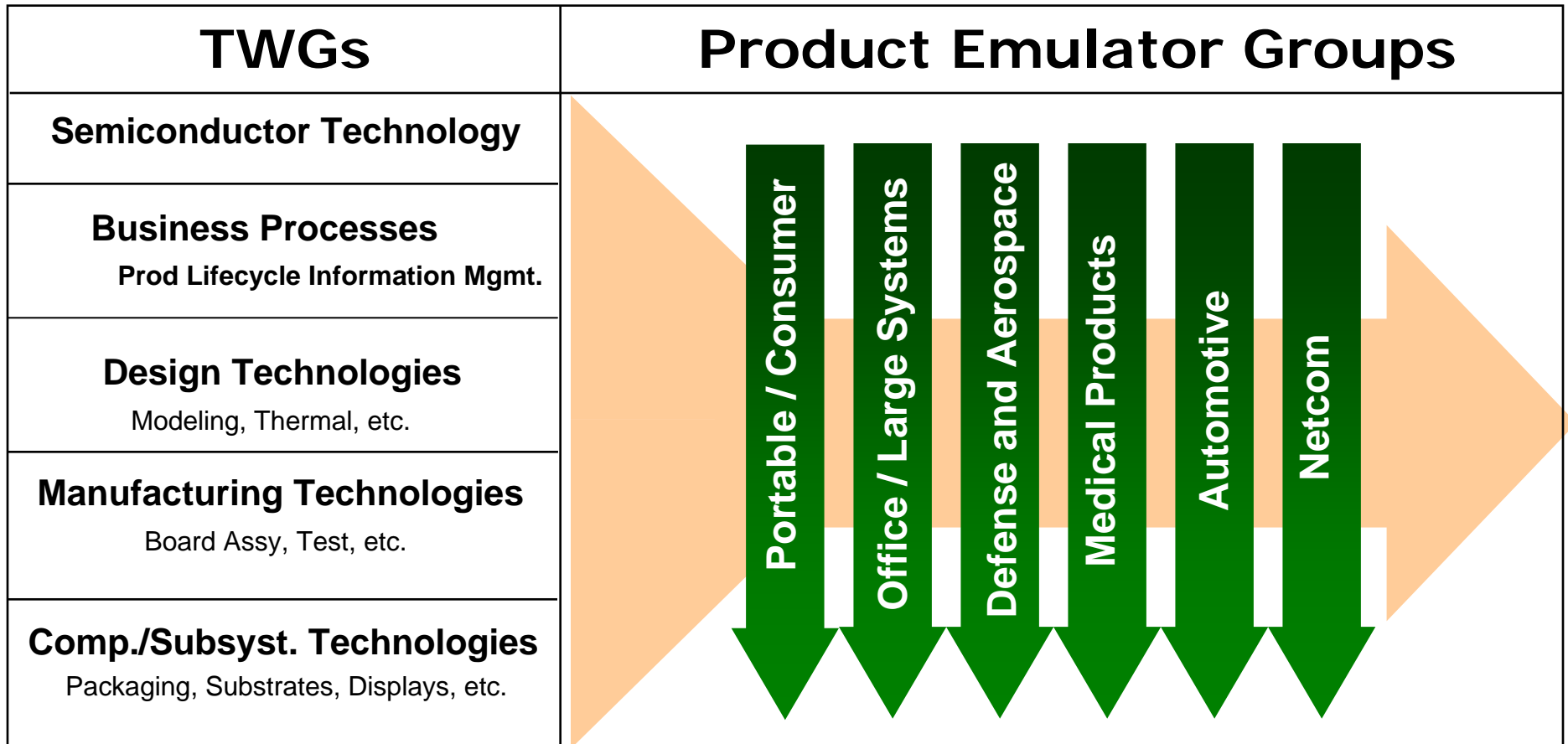
- **Maintain/expand strong linkages with other technology roadmaps**
- **Strengthen Product Emulator value:**
  - Utilize TWG Chair input on Key Attribute Spreadsheet formats and make needed changes prior to PEG Kick-off
  - Expand PEG participation utilizing T.C. input
  - Initiate PEG Kickoff at SMTAI in October with 6 PEG Chairs
  - Complete Emulator Spreadsheets by N.A. TWG kickoff
- **Establish/Strengthen linkages with European and Asian organizations.**
- **Expand emphasis on disruptive events (business and technical)**
- **Expand emphasis on prioritizing technical and market gaps and needs throughout roadmap**
- **Improve the “Executive Summaries” in individual chapters by highlighting the key points from the chapter**
- **New Roadmap on Solid State Illumination**
- **Link with VDMA on Organic Electronics**

# 2009 Technology Working Groups (TWGs)



# Roadmap Development

## Product Sector Needs Vs. Technology Evolution



## 2007/9 Product Emulator Groups

Product Emulator	Chair(s) 2007	Chair(s) 2009
Automotive Products	Jim Spall, Delphi	Jim Spall Need Co-chair
Aerospace/Defense Products	William E. Murphy, Lockheed Martin	Denny Fritz? Bill Murphy
Medical Products	Anthony Primavera, Boston Scientific	Anthony Primavera, Boston Scientific Need Co-chair
Consumer / Portable Products	Susan Noe, 3M	Susan Noe, 3M Need Co-chair
Office/Large Business System Products	Tom Pearson, Intel Erik Klink, IBM	TBD TBD
Network, Data, Telecom	Rolled Into Large Business	John Duffy, Cisco Need Co-chair

## 2009 TWG Leadership Status

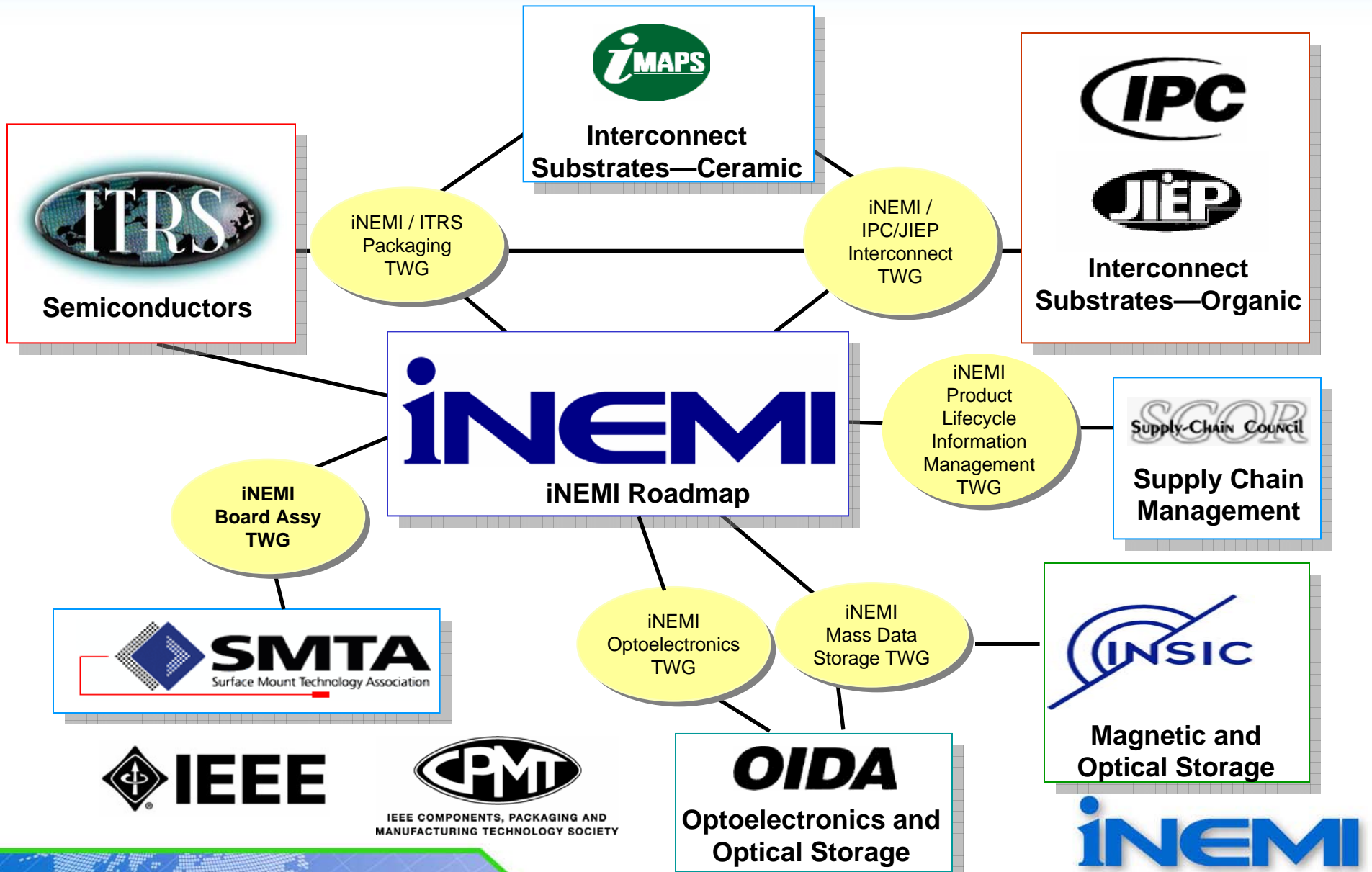
<b>Business Processes / Technologies</b>	<b>Chair(s)</b>	<b>Co-Chair(s)</b>
Product Lifecycle Information Management	Eric Simmon, NIST	Need Co-Chair
<b>Design Technologies</b>		
Modeling, Simulation & Design Tools	Yishao Lai, ASE	S.B. Park, Binghamton U.
Environmentally Conscious Electronics	Frank Rossman, Jabil	Need Co-chair
Thermal Management	Carl Fisher, 3M	Need Co-chair
<b>Manufacturing Technologies</b>		
Final Assembly	Steve Davidson, Delphi	Reijo Tuokko, Tampere U.
Board Assembly	Dongkai Shangguan, Flextronics	David Geiger, Flextronics Ravi Bhatkal, Cookson
Test, Inspection & Measurement	Mike Reagin, Delphi	Michael J. Smith,

## 2009 TWG Leadership (cont.)

Component / Subsystem Technologies	Chair(s)	Co-Chair(s)
Semiconductor Technology	Paolo Gargini, Intel	Alan K. Allan, Intel
Optoelectronics	Rob Surmann, Celestica	William Ring, WSR
Packaging	Bill Bottoms, NanoNexus William Chen, ASE	
Passive Components	Philip Lessner, Kemet	Laird McComber, Cornell -Dublier?
Connectors	John MacWilliams, Consultant	
RF Components	Ken Harvey, Teradyne	J. Stevenson Kenney, GIT John Barr, Agilent ; Eric Strid, Cascade MicroTech
Sensors	Carl Roberts, Analog Devices?	<b>Need Co-chair</b>
Organic & Printed Electronics	Dan Gamota, Motorola	Jan Obrzut, NIST Jie Zhang, Motorola
Energy Storage & Conversion Systems	<b>Need Chair</b>	Ralph Brodd, Broddarp Randhir Malik, IBM
Interconnect Substrates (Ceramic)	Howard Imhof, Metalor	Ton Schless, Sibco
Interconnect Substrates (Organic)	John T. Fisher, Consultant	Henry Utsunomiya, Consultant
Mass Data Storage	Tom Coughlin, Coughlin Associates	Roger F. Hoyt, retired
Solid State Illumination	Marc Chason, iNEMI	<b>Need Co-chair</b>



# 9 Contributing Organizations



## 2009 Roadmap Schedule

- **November 13, 2007 – Roadmap kick-off Europe, Productronica**
- **February 20-21, 2008 PEG Workshop/TWG Kick-off, Santa Clara, CA:**
- **May 14, 2008 – North American Roadmap Workshop, Herndon, VA**
- **June 2008 – European Roadmap Workshop**
- **June 2008 – Asian Roadmap Workshop - China**
- **August 6-7, 2008 – TC Review with TWG Chairs, Liberty Lake, WA**
- **September 22, 2008 – Final Chapters of Roadmap Due**
- **December, 2008 – Roadmap Released to iNEMI Members**
- **April, 2009 – Industry presentation at APEX**

# iNEMI Roadmap Presentation Activities at 2007 Industry Venues

IPC Printed Circuits Expo®, Apex®  
and the Designers Summit



Tuesday – Thursday,  
February 20 – 22, 2007  
Los Angeles Convention Center  
**REGISTER NOW**



May 29 - June 1, 2007  
John Ascuaga's Nugget - Reno, Nevada USA



System Integration  
in Micro Electronics  
Exhibition & Conference  
Nuremberg 24–26 April 2007



China's Premier SMT & MPT Event



## Why do Companies Participate in iNEMI Roadmap Activities?

- **Excellent opportunity to “test the iNEMI collaboration waters” without committing to membership.**
- **The experience leads to a better understanding of the “state of the art” in those areas of participation.**
- **Early access to the roadmap chapter’s technical and business information for the participating company.**
- **Opportunity to shape the industry’s future priorities concerning R&D.**
- **Opportunity to impact iNEMI’s future direction through “technology gap” identification and solutions most important to your company.**

## Why do Companies Participate in iNEMI Roadmap Activities? (continued)

- **Those who participate in the Roadmap creation get a broad view of the supply chain landscape from customers, competitors, and suppliers.**
- **Roadmaps can become “self fulfilling prophecies” as many within Industry focus on the identified challenges and benchmark their company against the user needs.**
- **As General Dwight D. Eisenhower was fond of saying, “It’s not the Plan (that is created) but the Planning (process) that provides maximum insight”.**



[www.inemi.org](http://www.inemi.org)

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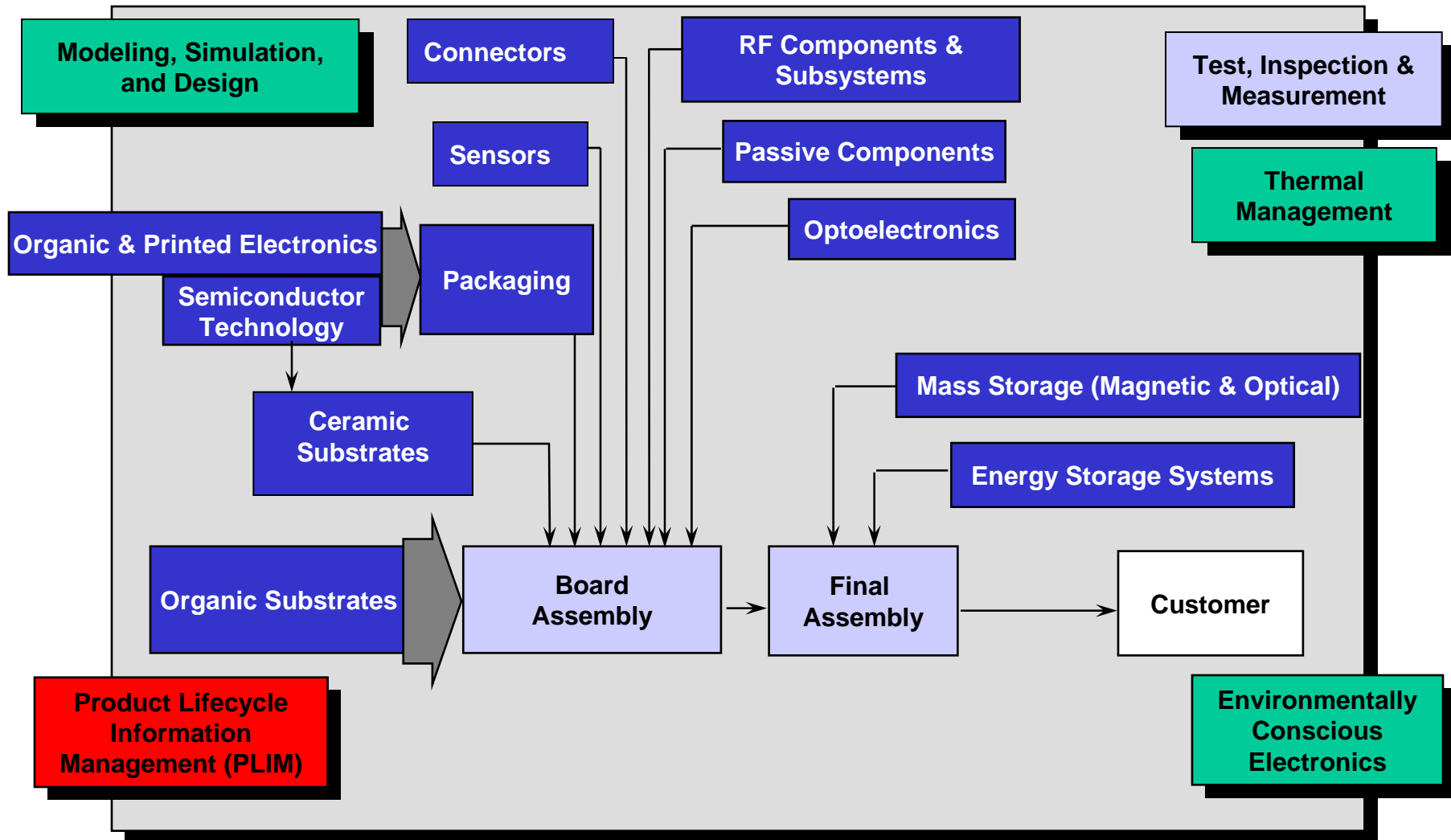
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# 2007 Technology Working Groups (TWGs)



# Roadmap Development

## Product Sector Needs Vs. Technology Evolution

