



# inEMI

International Electronics Manufacturing Initiative

## Availability of SnPb BGA's for High Reliability

*Jim McElroy  
March 1, 2007*

Hosted by



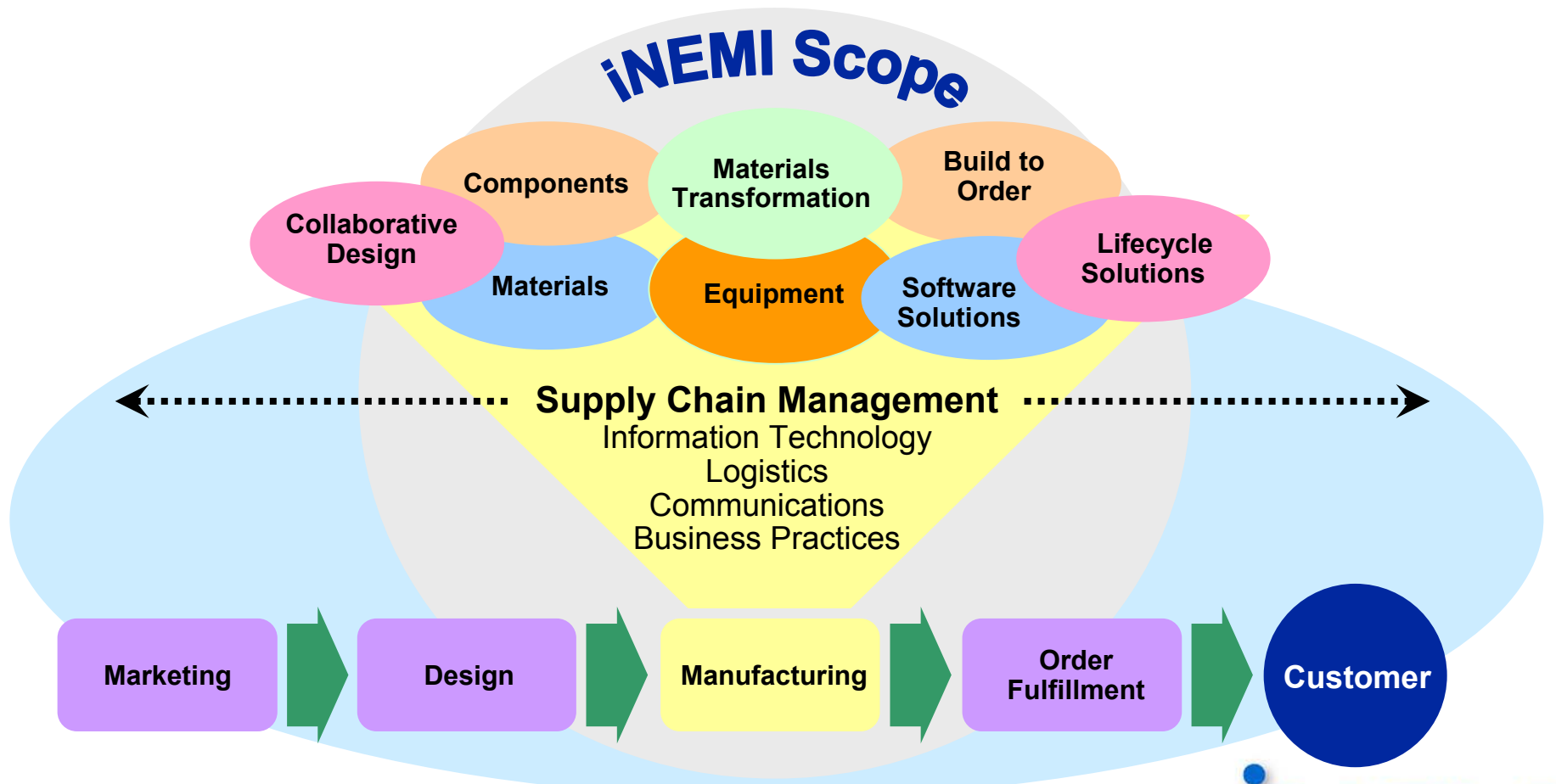
Advancing manufacturing technology

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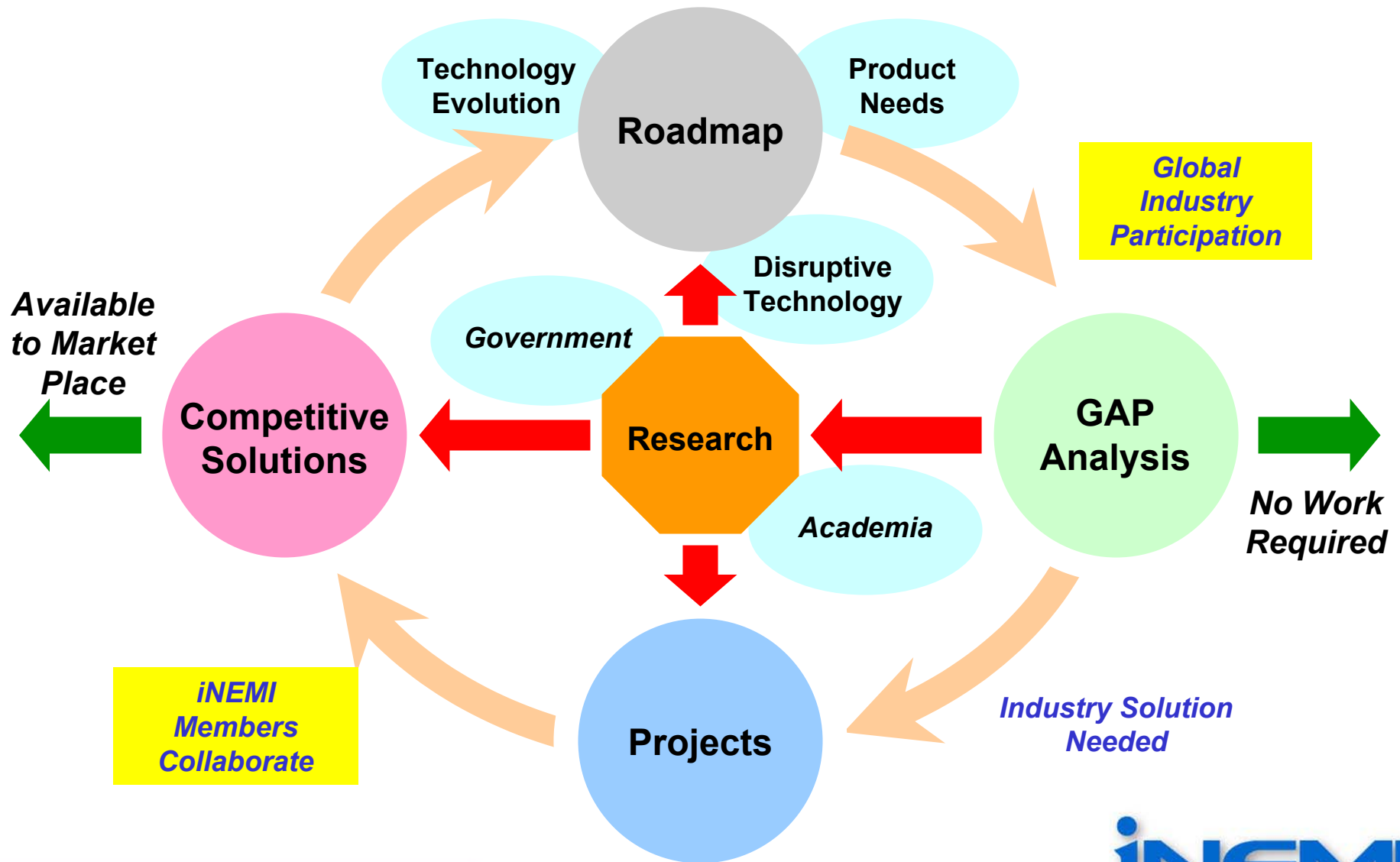
- **iNEMI background**
- **Workshop background**
- **Goals of workshop**
- **Agenda**

# iNEMI Mission

Identify and close technology gaps, which includes the development and integration of the electronics industry supply infrastructure.



# Methodology



# OEM/EMS Members



Alcatel-Lucent



**Medtronic**

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# Supplier Members



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# Association/Consortium, Government, Consultant & University Members



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**NIST**

National Institute of Standards and Technology

Développement  
économique  
et régional



# High Rel Task Group

## Objectives

- **Gain a common understanding of the supply chain challenges facing High Reliability OEMs/EMS providers who are:**
  - Taking Pb exemption (e.g. telecom switching, high end servers, etc.)
  - Out of Scope of RoHS (e.g. measurement equipment, medical)
- **Share experiences between OEMs/EMS providers on current state of supply base**
- **Understand impact of high volume (consumer product) transition to Pb-free components and assembly.**
- **Define the gaps that this Pb-free move leaves for the high reliability products.**
- **Influence supply base to meet on-going needs of these industry segments.**

# High Rel. OEM/EMS Participants



Alcatel-Lucent



DELPHI



invent



JABIL



SANMINA-SCI



# The Business Challenge

- **Consumer electronics is Driving Component supply base.**
- **Total Available Market (TAM) for all High Reliability categories (Servers, Telecom, Military, etc.) is on the order of 10% of Revenue for component Supply Base.**
- **Most suppliers prefer to have their entire product line converted to Pb-free.**
- **Maintaining a dual supply chain to satisfy the High Rel segments is costly and adds complexity.**
- **There is uncertainty on how long the Pb-free exemptions will last or when High Rel. segment will convert.**
- **Today's alternatives are not very attractive:**
  - **Risk of rapid conversion of products prior to full understanding of long term reliability testing.**
  - **Supply risk of not being able to secure SnPb compatible BGAs and other critical component and sub-assemblies.**

# Scenarios

- **Long term solution is to reduce reliability risk of Pb-free components and assembly.**
  - **The economic incentive is compelling**
  - **Well worth technology investment**
  - **Could take several years to complete but this is cumulative so strides made today are useable.**
- **What can we do to help encourage the availability of SnPb compatible BGAs (workshop focus)?**
- **What can we do to close remaining knowledge gaps that the High Rel. segments face?**
- **What can be done longer term to better understand and predict reliability of electronics hardware?**

# Goals Workshop

- **Understand High Reliability BGA needs from a business perspective.**
- **Understand supply base solutions to those needs.**
- **Identify gaps where more could be done to improve availability of high reliability BGAs.**
- **Discuss possible alternatives to close gaps.**
- **Focus is on composite industry needs rather than looking at any one OEM or supplier.**

# Agenda

- 9:00 – 9:15** Welcome/Background – Jim McElroy
- Situation Analysis**
- 9:15 – 9:40** High Rel. BGA TAM – Brandon Prior, Prismark Partners
- 9:40 – 9:55** User Perspective – Ken Stuchlik, Alcatel Lucent
- 9:55 – 10:25** Break
- Supplier Viewpoints**
- 10:25 – 10:45** Craig Stice, Micron Technology
- 10:45 – 11:05** Wayne Lindsay, Freescale Semiconductor
- 11:05 – 11:25** Michael Hundt, ST Microelectronics
- 11:25 – 11:45** Pranab Sarma, STATS-ChipPAC
- 11:45 – 12:00** Framework for solution discussions – Jim McElroy
- 12:00 – 1:00** Lunch
- Knowledge Gaps for Industry**
- 1:00 – 1:15** Joe Smetana, Alcatel-Lucent (reliability)
- 1:15 – 1:30** Thilo Sack, Celestica (manufacturing)
- Solution discussions**
- 1:30 – 3:30** Alternatives to achieve goal  
Measure support for path forward  
Action plan for next steps



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