

2001

PEER

ANNUAL MEETING



JANUARY 25-26, 2001  
OAKLAND MARRIOTT CITY CENTER

## Closure & Discussion

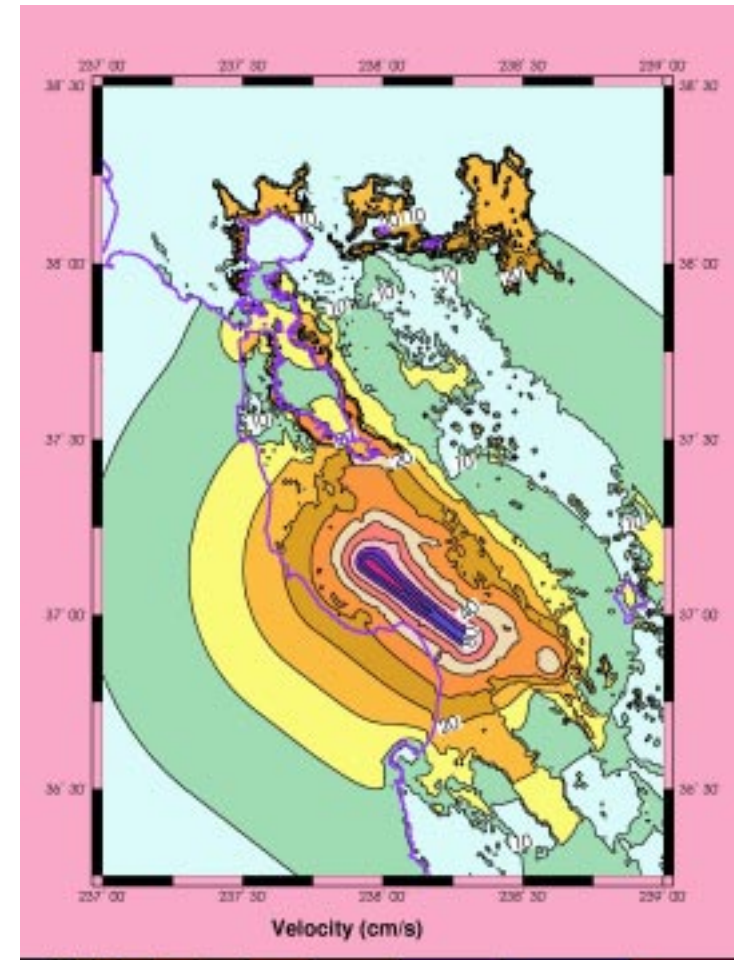
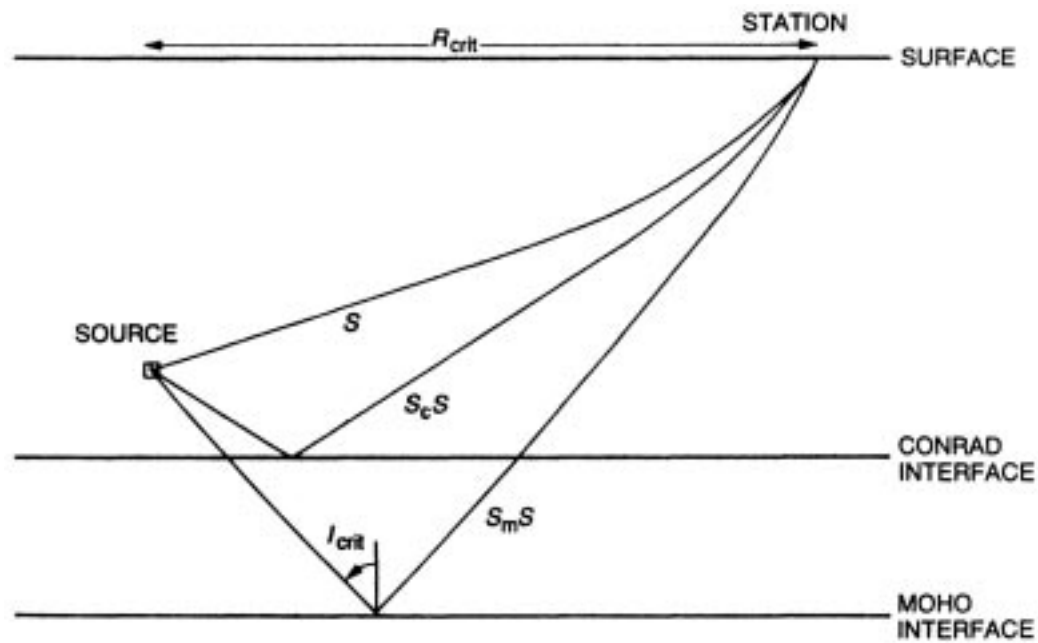
Greg Deierlein  
Deputy Director

# Thanks to ...

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- Parshaw, Darlene & Co.
- Sponsors & Industry Partners
- Researchers
- Presenters
- Participants

# MOHO Bounce



# PEER-PBEE Framework Equation

Socio-Economic Decision

Performance Target

$$v(DV) = \iint G(DV | DM) | dG(DM | IM) | | d\lambda(IM) |$$

DV Decision Variable

DM Damage Measure

IM Intensity Measure

System Performance  
& Loss Models

Ground Motion  
Prediction

Simulation &  
Behavioral Information



# Interest and Demand from Stakeholders

	Stakeholders					
Uses	Designers	Building Officials	Owners	Lenders Insurers	Government	Emer. Planners
New Design	■	■	■			
Evaluation	■	■	■			
Retrofit	■	■	■			
Building Rating	■		■	■		
Risk Studies			■	■	■	
Regional Loss					■	■

# Integration of all Uses

## Individual Buildings:

- Evaluation
- Retrofit



Performance  
Objective

## Building Rating Systems:

- Probable Maximum Loss
- Other



Percentage or  
Dollars

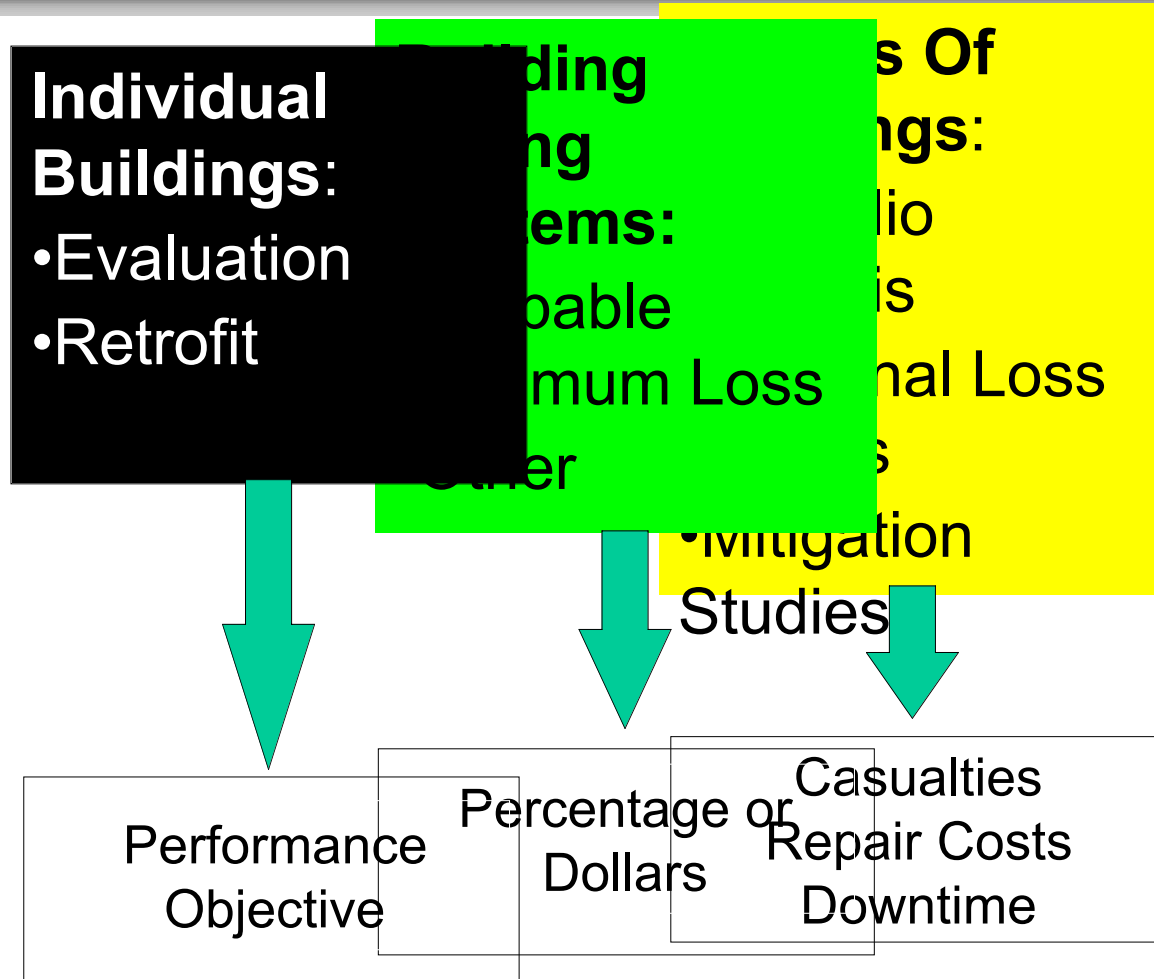
## Groups Of Buildings:

- Portfolio Analysis
- Regional Loss Studies
- Mitigation Studies



Casualties  
Repair Costs  
Downtime

# Integration of all Uses



# Unified Performance System

Groups Of  
Building  
Evaluation  
Retrofit  
Building Rating  
Portfolio  
Analysis  
Loss Studies  
Mitigation  
Studies

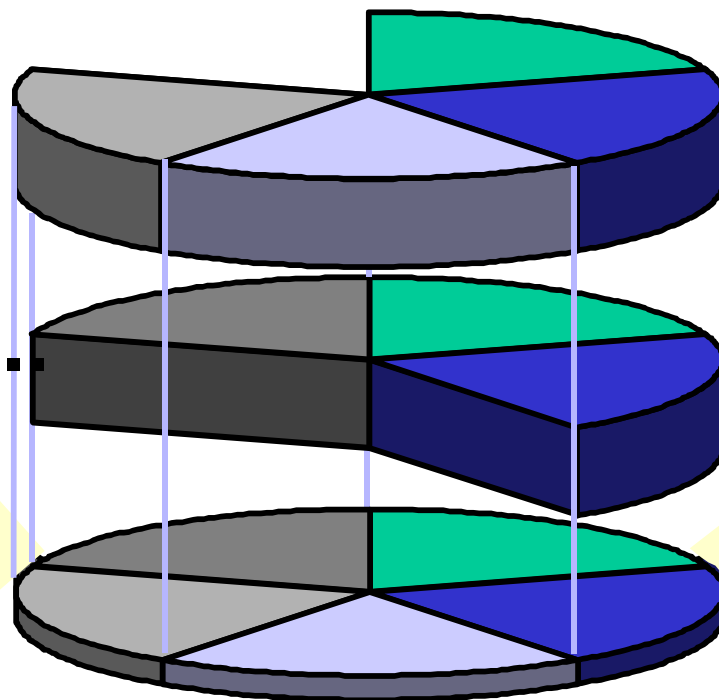


Means of Verification



# PEER Partnerships

- SCEC
- USGS
- MCEER & MAE
- NCREE
- BRI
- ...



**Core Program**  
*(NSF, CA, Wa)*

**Lifelines Program**  
*(PG&E, CEC, Caltrans & FEMA)*

**Business and Industry Partner Program**  
*(over 20 partners)*

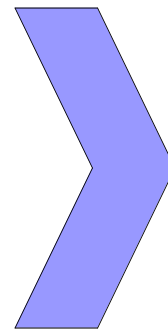


# PEER Mission Statement

Develop, validate, and disseminate **Performance-Based Earthquake Engineering (PBEE)** technologies for buildings and infrastructure to meet the diverse economic and safety needs of owners and society

## *Stakeholders & Deliverables:*

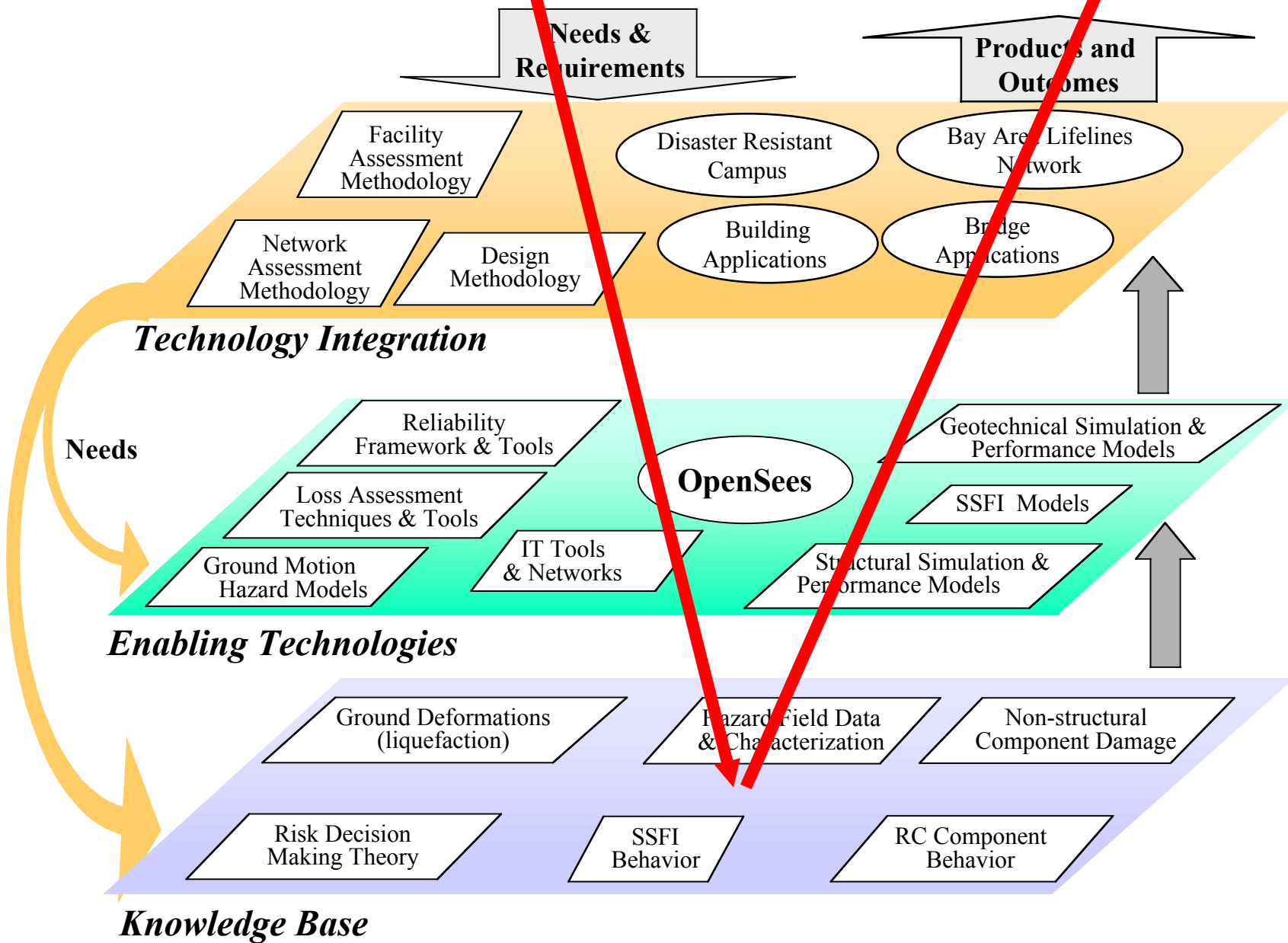
- **PBEE Methodology**
- **Data and Information**
- **Enabling Technologies**



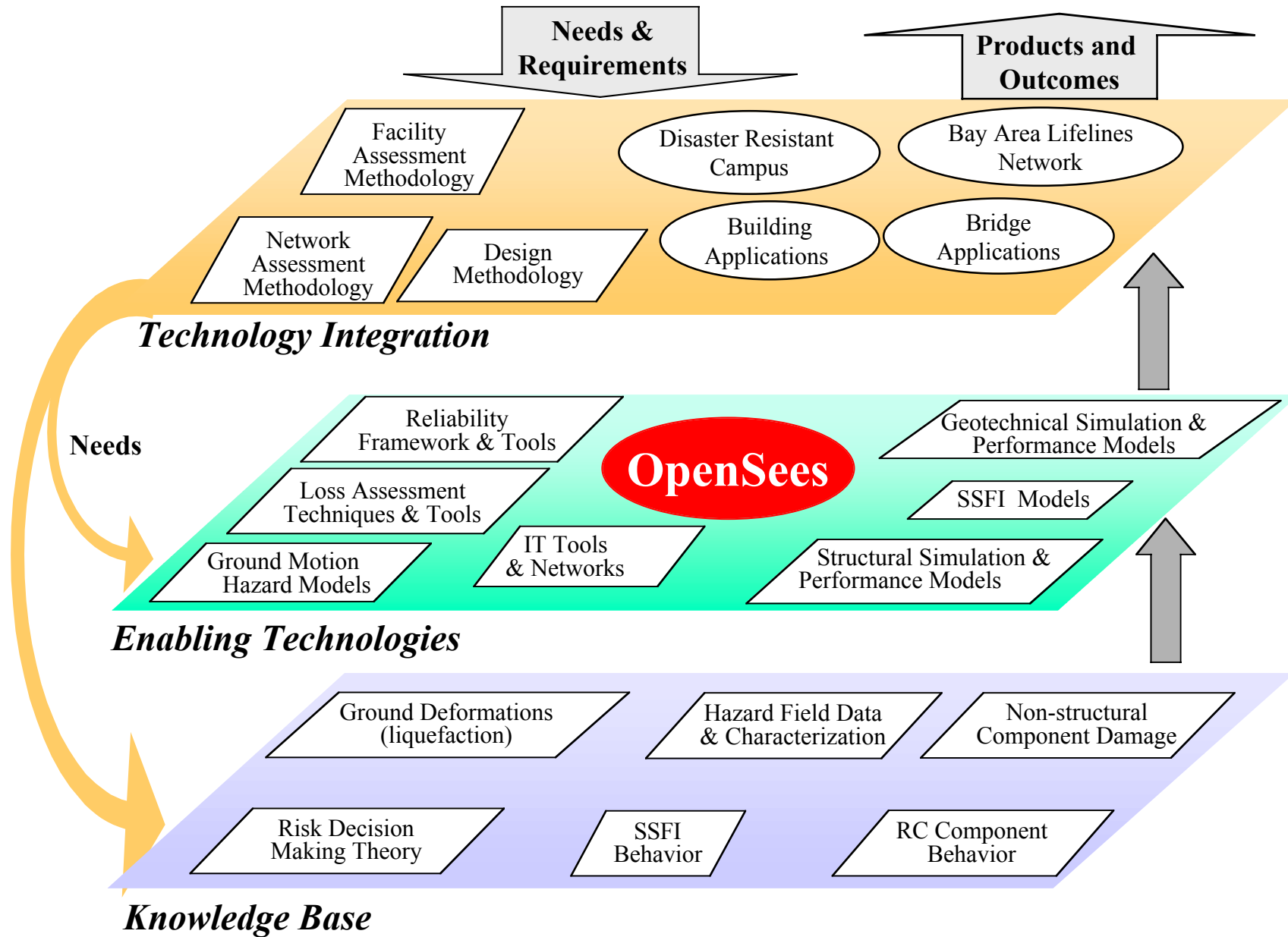
**Testbeds ?**



# Users & Marketplace



# Users & Marketplace

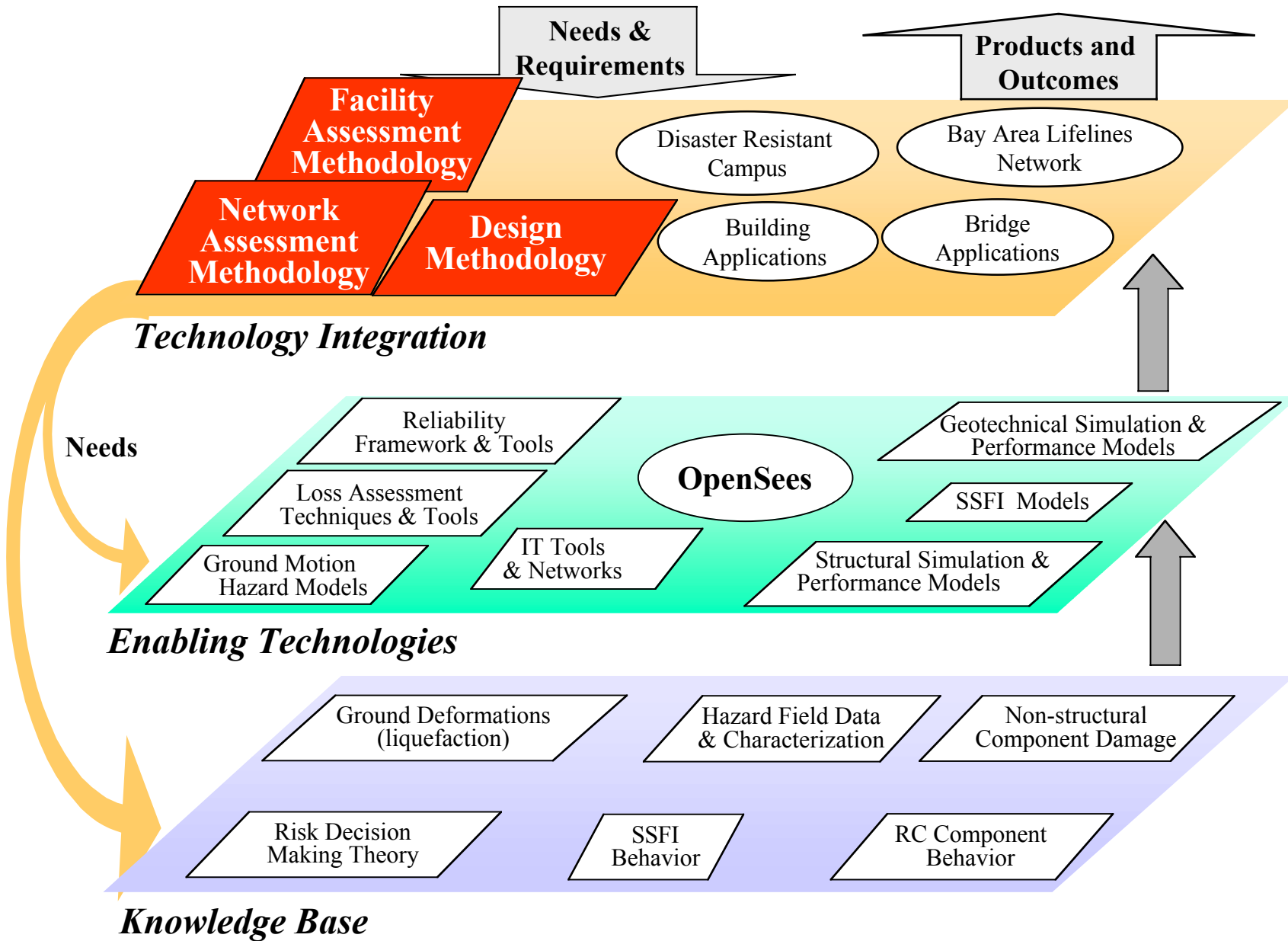


# Tests, Models, & Simulation

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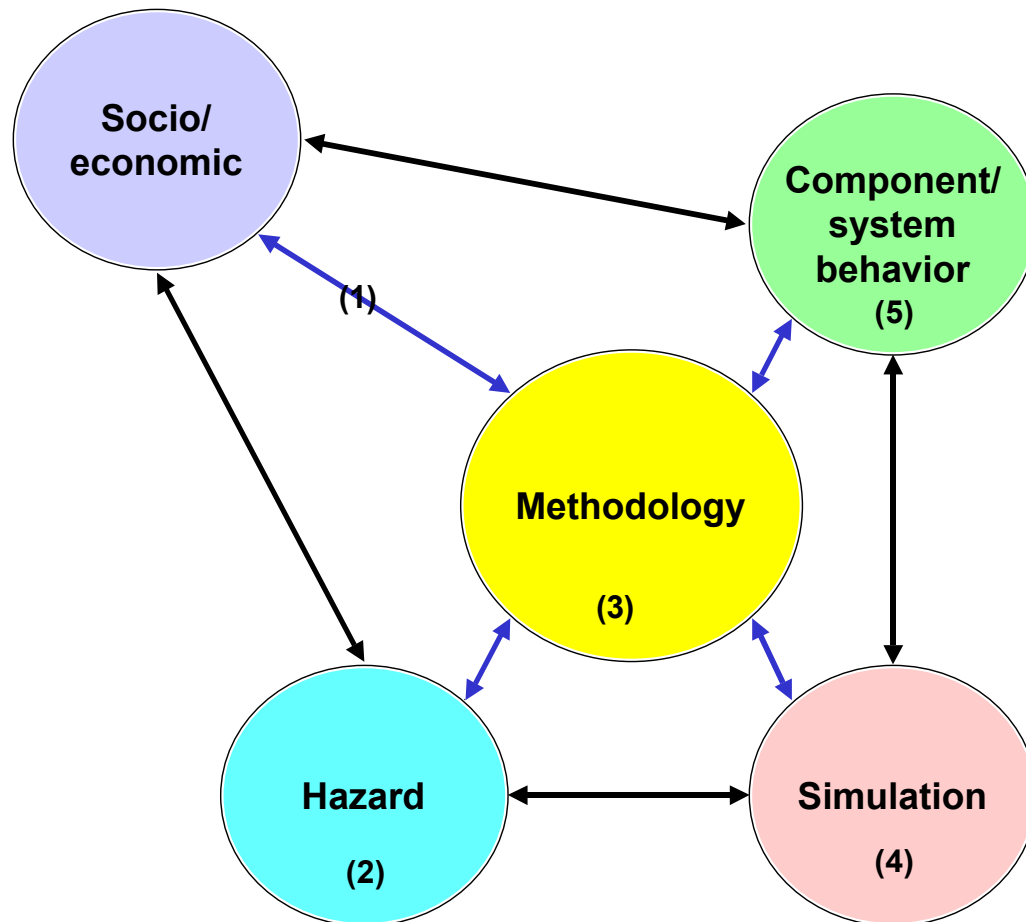
- **“Curated” Databases**
- **Engineering Models**
  - limit state models (e.g, FEMA 273 “capacities”)
  - simulation models
  - performance models
- ***OpenSees* Implementation**
- **Utilization**
  - Simulation
  - Loss Estimation & Decision Tradeoffs

# Users & Marketplace

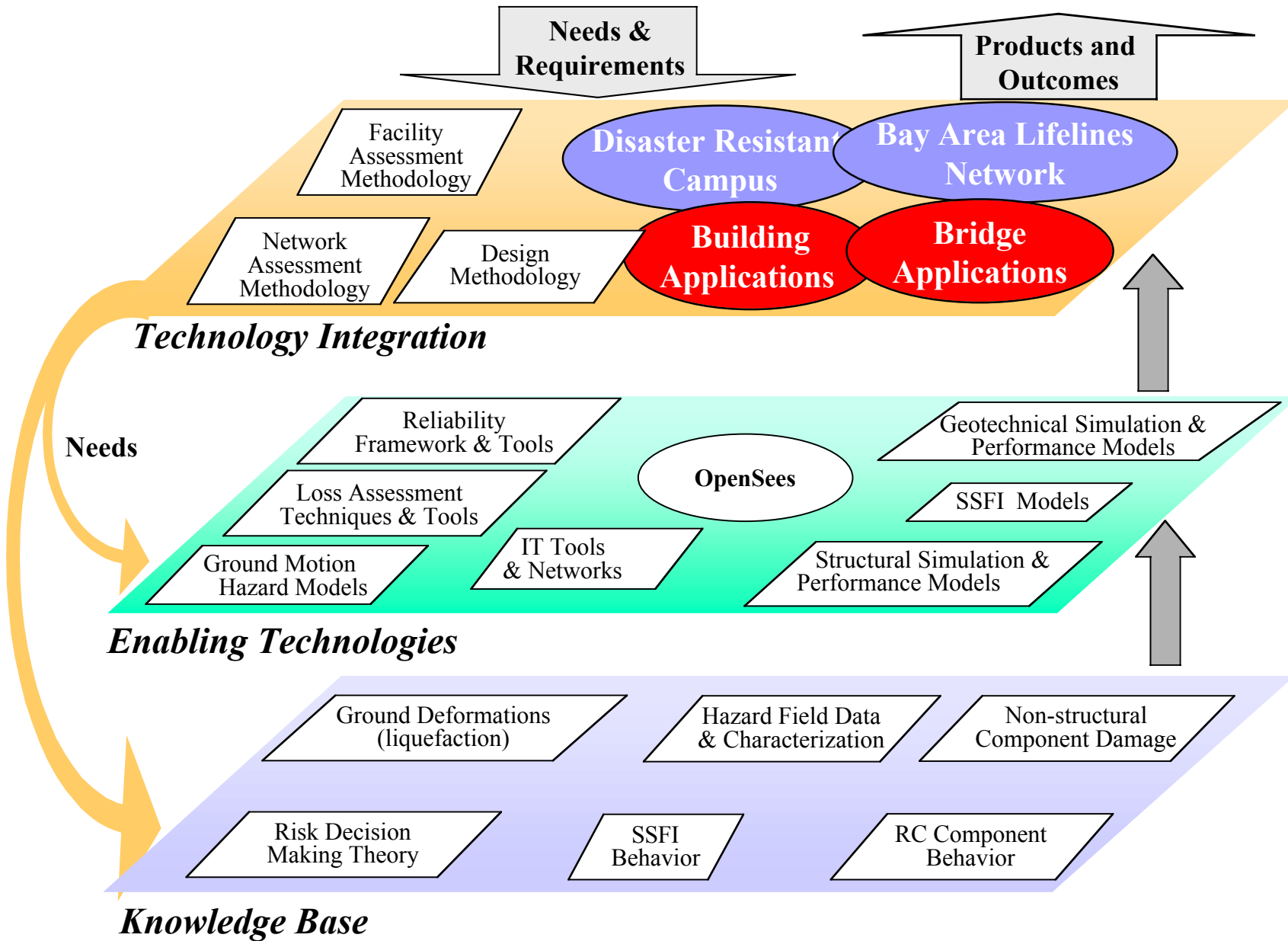


# Bridging the Cultural Divides

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# Users & Marketplace





# Building & Bridge Applications

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*Pulling it all together ...*

- test bed structures with real world complexity
- seismic hazard assessment
- damage and performance measures
- modeling & simulation
- probabilistic assessment of performance
- loss/impact evaluations
- risk management decisions



# Network Systems

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- Transportation & Lifelines
  - Highway Demonstration Project
  - Lifeline Networks
  - Bay Areas Lifelines Study?
- Disaster Resistant Campus
  - Berkeley Study
  - Hi-tech Corporation?

*Impact of system performance on component design criteria?*

# Thrust Area Meetings

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- Review of key progress and developments
- *Synthesis Reports*
- Strategic planning (yr 5 and beyond)
  - deliverables, products and milestones
  - methodologies & testbeds
  - coordination and organizations
- Feedback and comments
- Year 4 annual report and site visit preparation

