

Advanced Manufacturing and the Smart Worker

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SMLC

SMART MANUFACTURING LEADERSHIP COALITION

Calit2
University of California, Irvine



A Clean Energy Smart Manufacturing Institute

CLEAN ENERGY SMART MANUFACTURING INSTITUTE



DOE Funded:

Power America

Wide Bandgap Semiconductors
Raleigh, NC

IACMI

Composites
Knoxville, TN

Unawarded Institutes:

Smart Manufacturing

DOD Funded:

America Makes

3D Printing / Additive
Manufacturing
Youngstown, OH

DMDII

Digital Manufacturing
& Design
Chicago, IL

LIFT

Lightweight Metals
Detroit, MI

AIM Photonics

Photonics
Rochester, NY

FLEXTECH Alliance

Flexible Hybrid Electronics
San Jose, CA

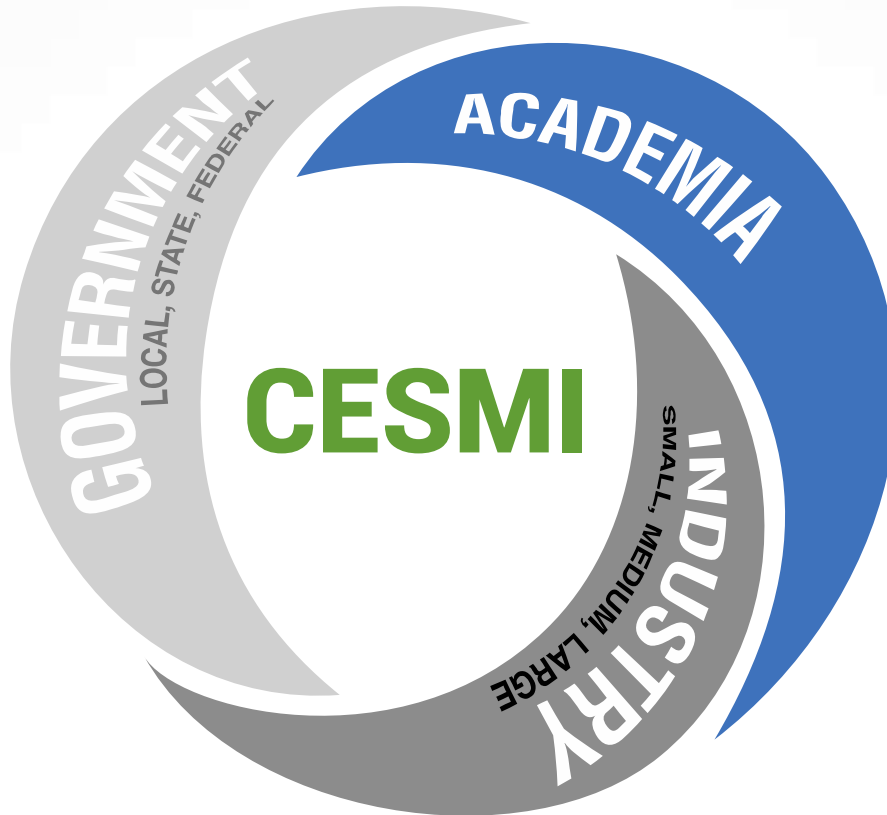
Unawarded Institutes:

Revolutionary Fibers & Textiles

The NNMI

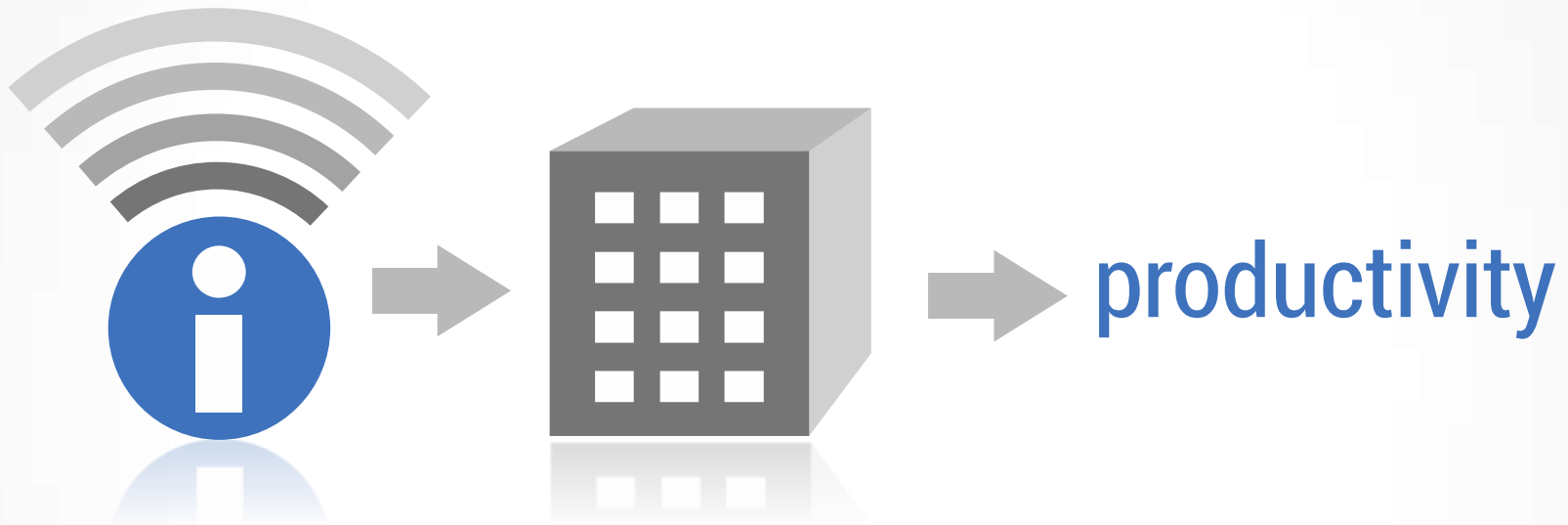
A National Network of Institutes focused on advanced manufacturing technologies

CLEAN ENERGY SMART MANUFACTURING INSTITUTE



\$70 Million in Matched Funding

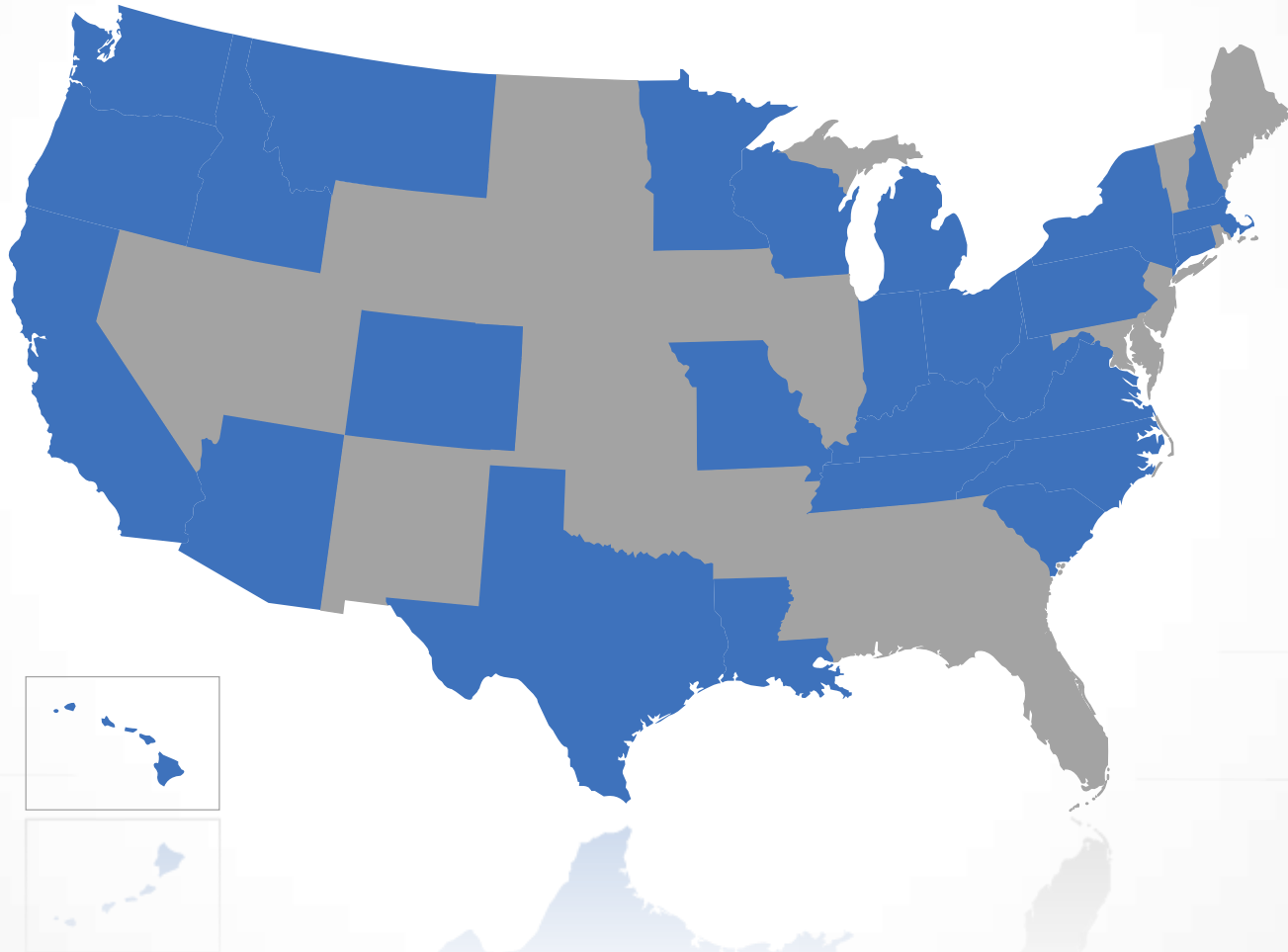
CLEAN ENERGY SMART MANUFACTURING INSTITUTE



A Clean Energy Smart Manufacturing Institute

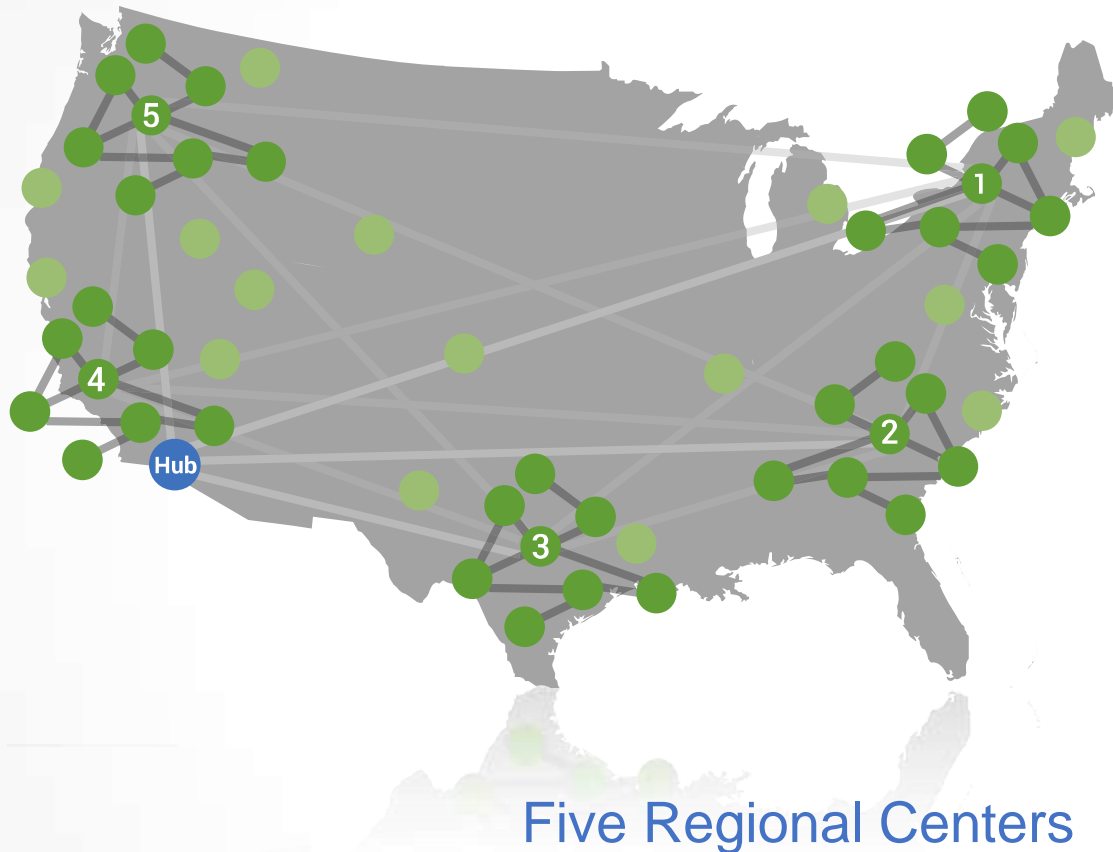
Intended to invigorate US global competitiveness
CLEAN ENERGY SMART MANUFACTURING INSTITUTE

We represent 28 states, leveraging existing organizations including 75+ Institutions and 150 Facilities



Governance

A Network of Networks



SMLC-SMI HQ

- Based in LA
- Institute Administration
- Central Platform and Marketplace Development and Management

Five Regional Centers

1. North East (NY)
2. South East (SC)
3. Gulf Coast (TX)
4. California (CA)
5. Pacific North West (WA)

CEMSII Smart Manufacturing Platform

Open Platform & Marketplace For Industrial Data, Modeling, & Metric Applications

- For contributors and users
- Accessible Affordable, Flexible to SMMs

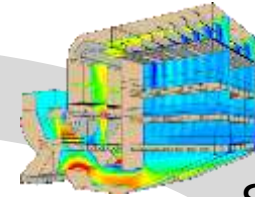
SM Value Proposition

Data as the key asset

Shift dependency of application from Infrastructure to data-based outcome



*Smart grid
Interoperability*



*In-production
performance*

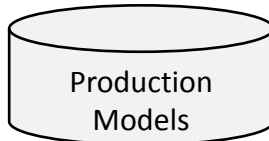
*Smart machine
operations*



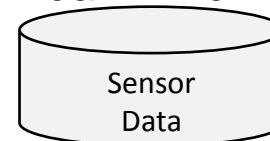
*Value chain
Interoperability*



Event Data



Real-Time Data



*Sustainability
& Safety*

People

The ultimate manufacturing asset

Sophisticated on-board sensors

Ability to learn, think, and adapt

Powerful pattern recognition

Highly mobile and autonomous

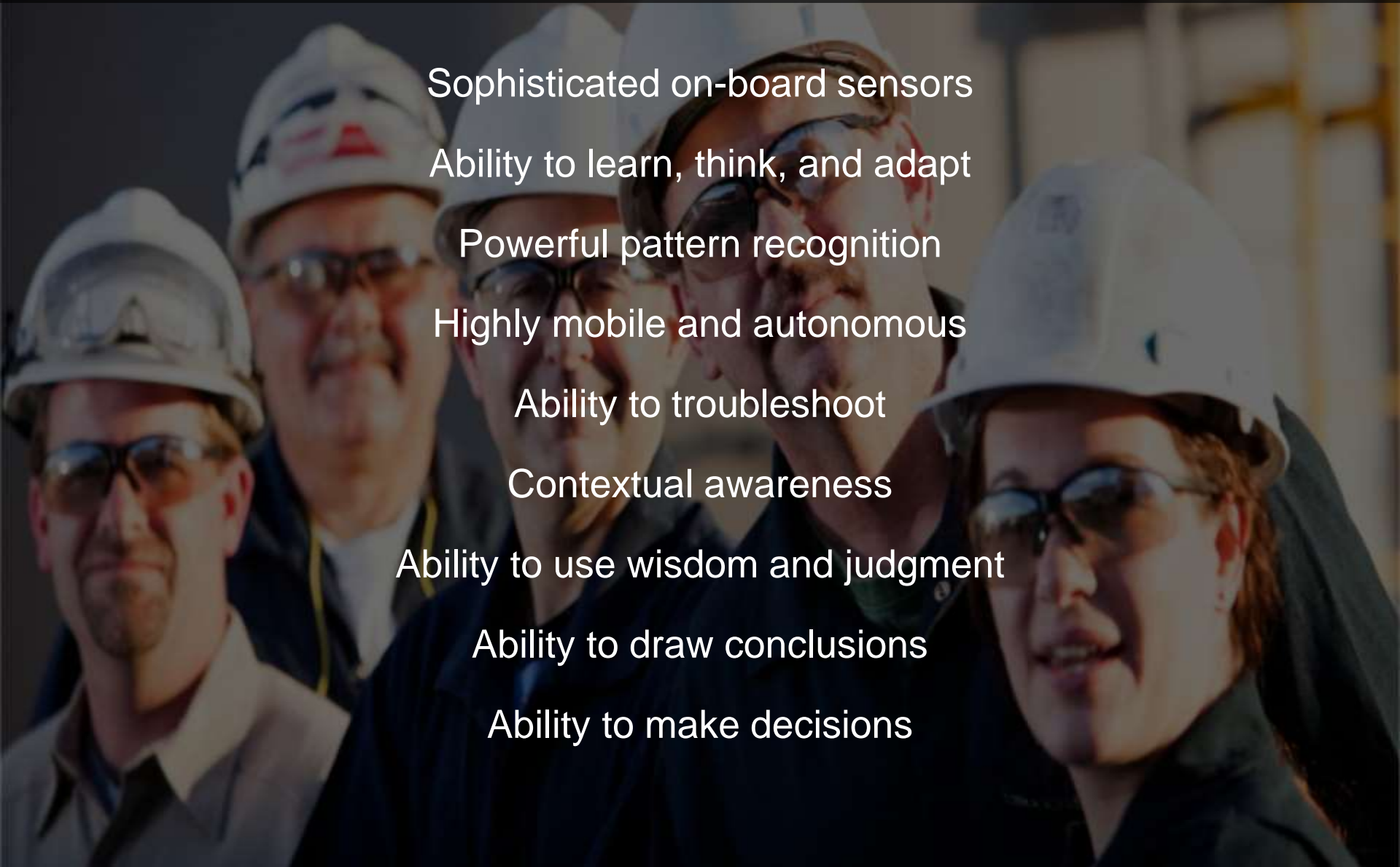
Ability to troubleshoot

Contextual awareness

Ability to use wisdom and judgment

Ability to draw conclusions

Ability to make decisions





EMBEDDED
WIRELESS
COMPUTER

VIDEO
CAPTURE

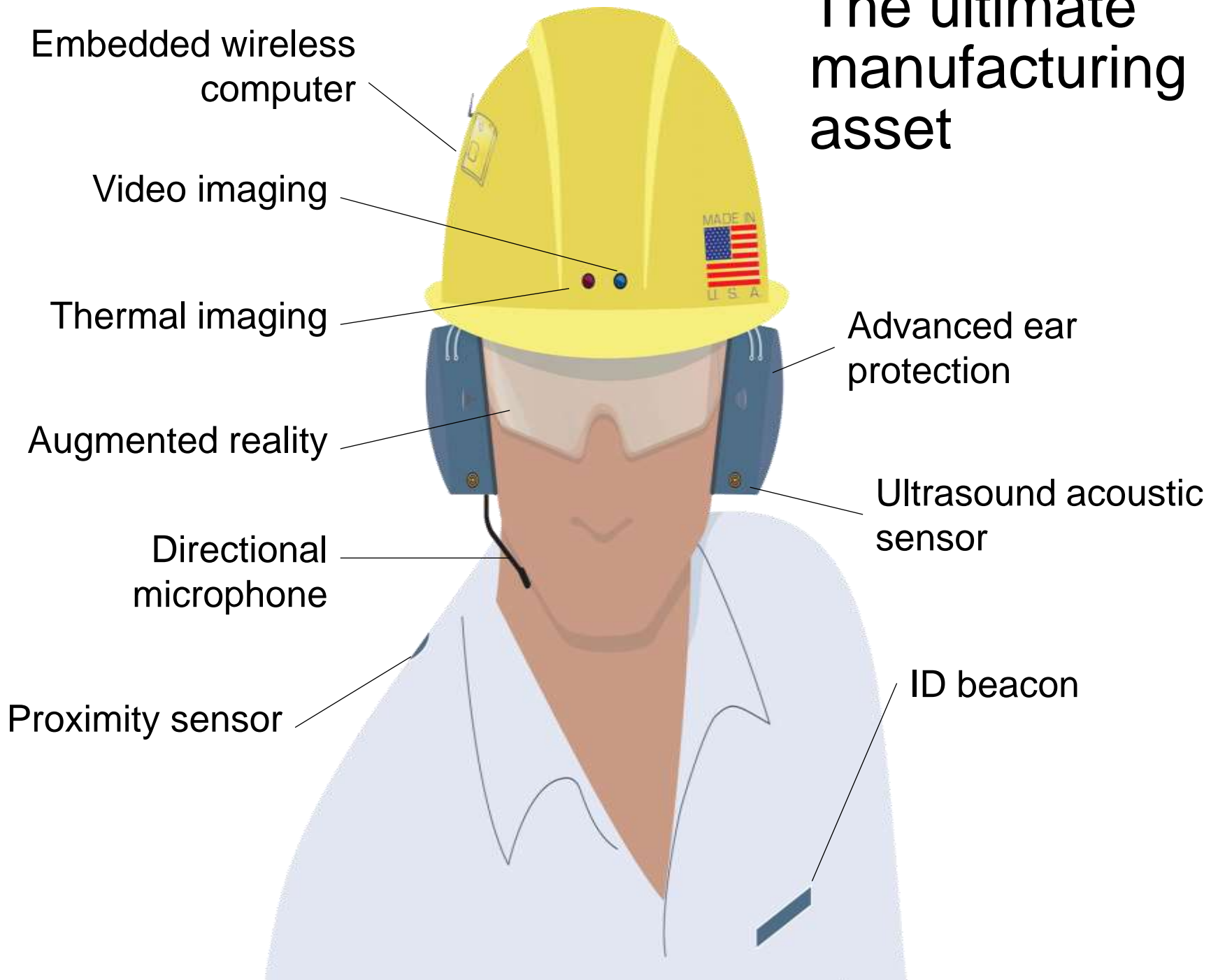
HEAT IMAGER

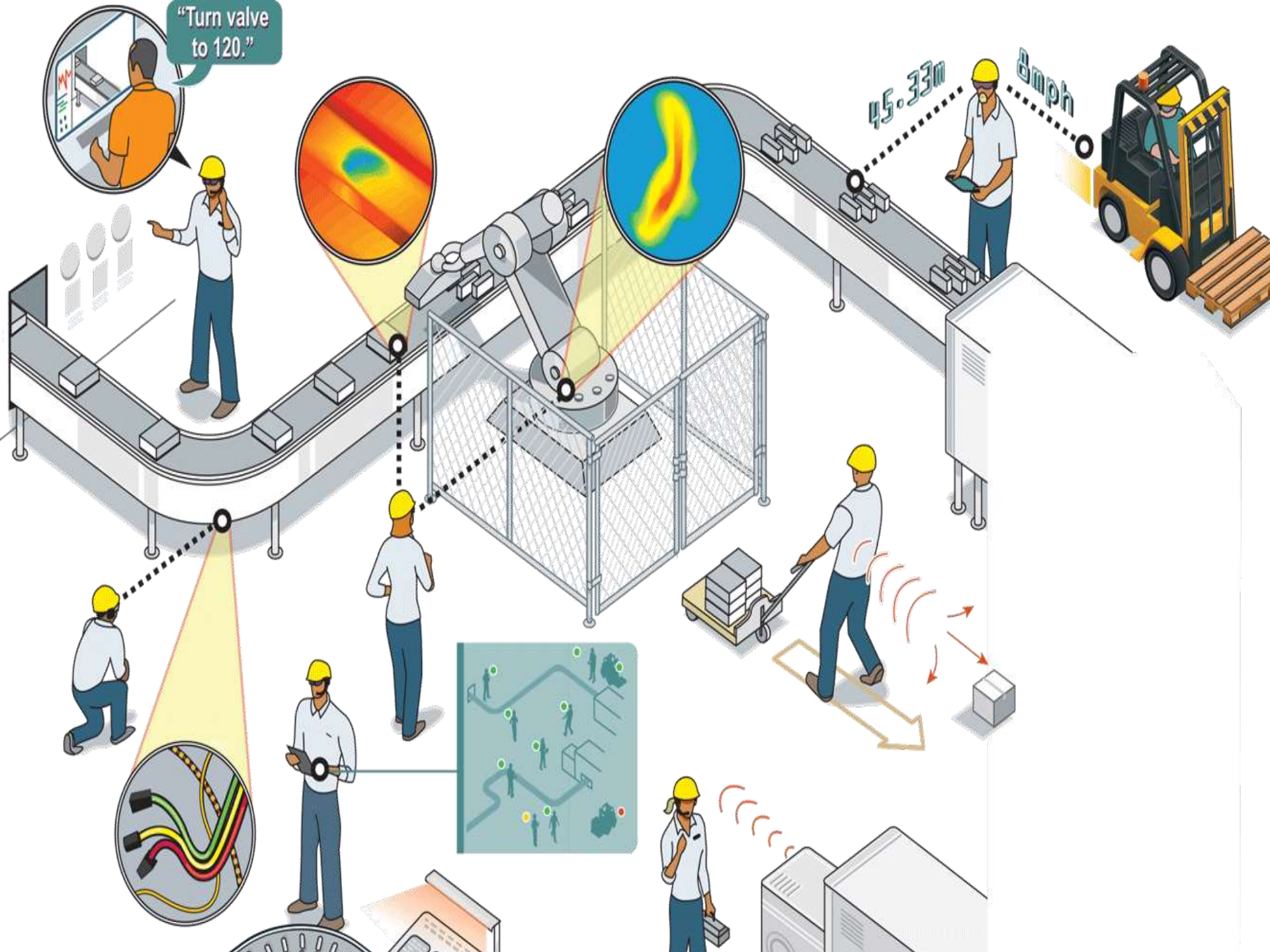
AUGMENTED
REALITY
GOGGLES

ACOUSTIC
HEADPHONES

DIRECTIONAL
MICROPHONES

The ultimate manufacturing asset

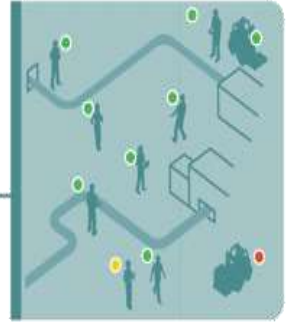




"Turn valve to 120."

45.33m

8mph



Empowering the ultimate manufacturing asset

IoT can make it happen

Safe

Advanced safety
Health tracking
Behavior check



Productive

Well trained
Decision support
Goal setting



Worker
IoT

Efficient

Augmented sensory
Interconnected
Computer feedback

Well

Human-centric
Balanced
Health/wellness

Safe

Productive

Efficient

Happy



Acknowledgements:

- SMLC-CEMSII (PI, Denise Swink SMLC CEO)
- Dr. Mark Bachman, UCI

SMLC-CESMI: Get Involved.

Plan, Support, Pledge.
