



ECONOMIC DEVELOPMENT AGENCY GRANT: UCF MICROELECTRONICS DIGITAL TWIN

*Supporting the Central Florida
Semiconductor Industry Growth*

Dr. Grace Bochenek, MeDT Principal Investigator, Director of School of Modeling, Simulation & Training
MeDT Co-Principal Investigators: Dr. Dirk Reiners, Dr. Sean Mondesire, Dr. Glenn Martin, Eileen Smith

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The **BUILD BACK BETTER REGIONAL CHALLENGE** invests in our communities so that they can execute their ambitious plans to supercharge their regional economies.

E·D·A

U.S. ECONOMIC DEVELOPMENT ADMINISTRATION

Central Florida's Semiconductor Coalition



UNIVERSITY OF
CENTRAL FLORIDA

Coalition's BBBRC Activities to Date:



BY THE NUMBERS

Build Back Better Regional Challenge



AMERICAN
RESCUE PLAN

529

APPLICANTS

60

FINALISTS

21

REGIONAL COALITIONS
AWARDED

\$970M INVESTED

E·D·A

U.S. ECONOMIC DEVELOPMENT ADMINISTRATION

AWARDEES

Build Back Better Regional Challenge



AMERICAN
RESCUE PLAN



Key

- ADVANCED MOBILITY and AEROSPACE
 - BIOTECHNOLOGY and HEALTH
 - CLEAN ENERGY
 - INDIGENOUS FINANCE
 - NATURAL RESOURCE and AGRICULTURE
 - NEXT GENERATION MANUFACTURING
 - STATES SERVED
- Icons mark the lead institution of awardees*

1 OF 21 COALITIONS AWARDED

- **\$50.8M** federal investment to lead the nation in **semiconductor reshoring**
- Funds the expansion of facilities at **Osceola County's NeoCity**
- **\$8.8M** to **UCF Microelectronics Digital Twin (MeDT)**



FUNDED COALITION PROJECTS

Project No. 1 Center for NeoVation Expansion

Project No. 3 Advanced Packaging Program

Project No 4. Microelectronics Design and Production Digital Twin

Project No. 5 Upskill Osceola

Project No. 6 Catalyst Osceola

Project No. 7 Coalition Governance

UCF MICROELECTRONICS DIGITAL TWIN (MeDT) LEADERSHIP

Principal Investigators:

- Dr. Grace Bochenek, SMST

Co-Principal Investigators:

- Eileen Smith, SMST
- Dr. Sean Mondesire, SMST
- Dr. Dirk Reiners, CECS/SMST
- Dr. Glenn Martin, SMST

INDUSTRY PARTNERS



THE NATIONAL CENTER
FOR SIMULATION

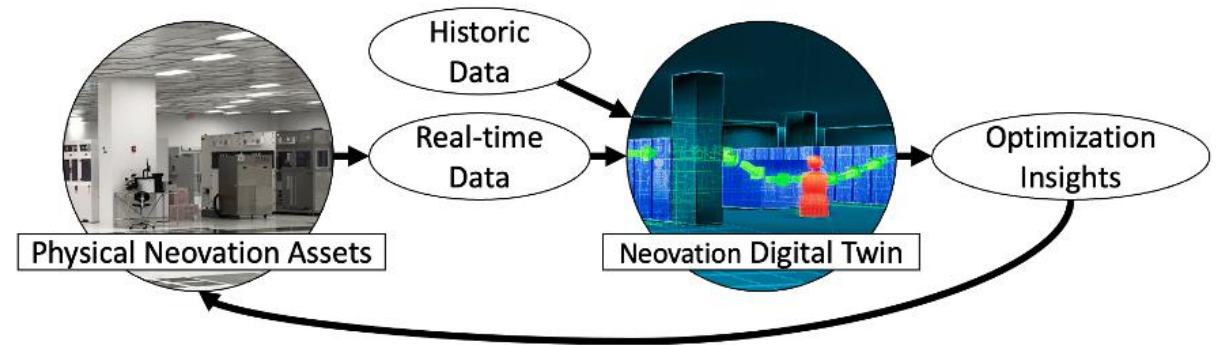
**DAVE
IVIVE[®]
COMPUTER**

Microelectronics Digital Twin (MeDT)

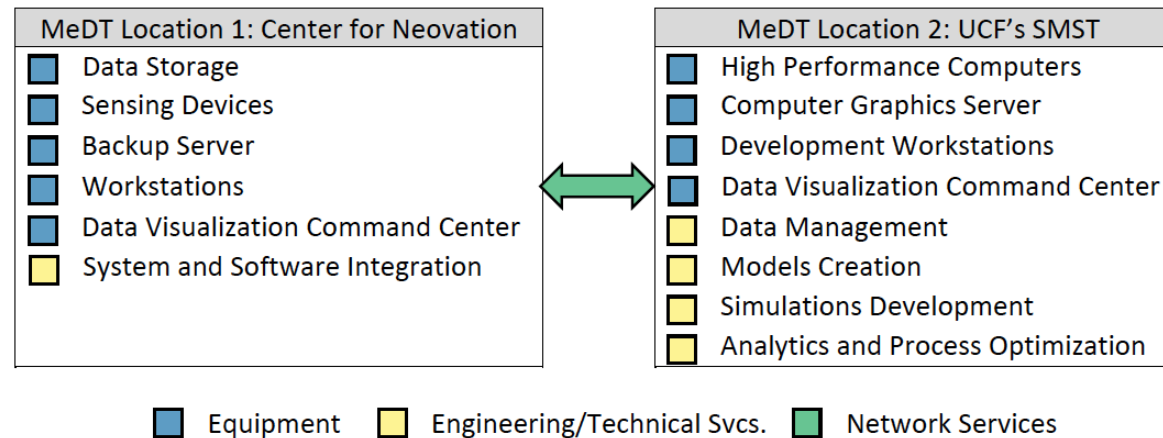
“Building Central Florida’s Semiconductor Cluster for American Competitiveness”

A fully developed microelectronic digital twin will accelerate the development of an emerging microelectronics cluster in Central Florida and strengthen the region’s simulation technology sector which produces innovation with global impact.

- Increasing reliability and productivity of the Center of Neovation
- Lowering maintenance costs
- Reducing risk
- Creating new businesses
- Increasing wages
- Improving supply and delivery chain efficiency
- Enabling cross-discipline collaboration to foster innovation



MeDT SCOPE OF WORK



Task One: Develop current-state Digital Twin of the Center for Neovation. Develop first-stage MeDT creating simulated models from data collected in real-time from the facility, select pieces of equipment, and production workflow.

Task Two: Creation and Design of DT Infrastructure Framework. Integrate the new high-performance computer, servers and tool sensors to support data transmission as well as other communications between distributed MeDT locations, and future data capture needs.

Task Three: Develop Simulations to Analyze, Predict and Provide Insight. Develop simulations within the MeDT to highlight efficiencies and deficiencies within current production pipelines, using data from real-time sensors to predict the success/failure probability of the chip design, manufacturing and maintenance processes.

Task Four: Develop an Integrated and Distributed Command Center. Build an interface for the DT, to review data streams, present simulations and provide optimization reports.



