



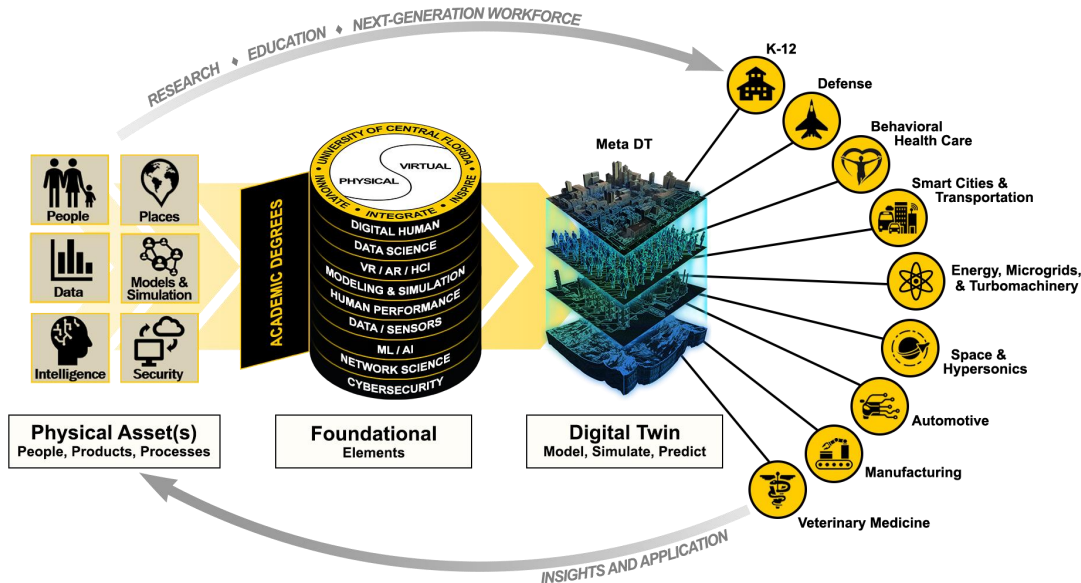
School of Modeling Simulation and Training

UNIVERSITY OF CENTRAL FLORIDA



College of Engineering and Computer Science

UNIVERSITY OF CENTRAL FLORIDA



Grace Bochenek, Carolina Cruz-Neira

April 2022

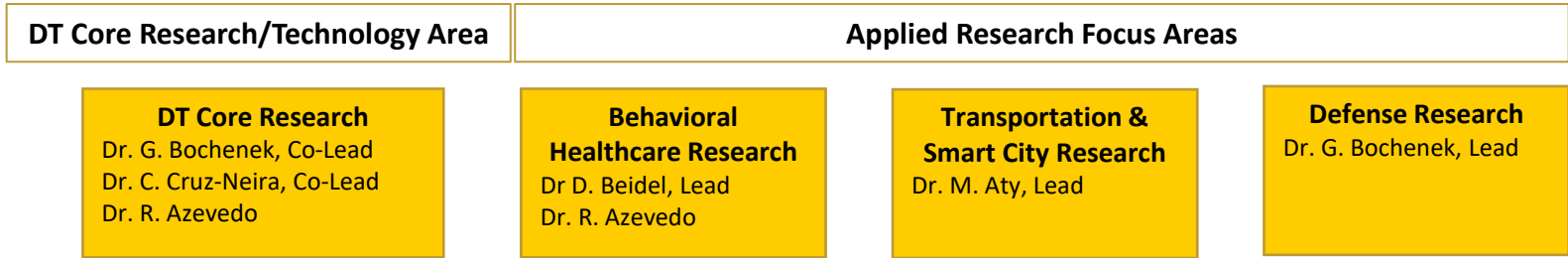
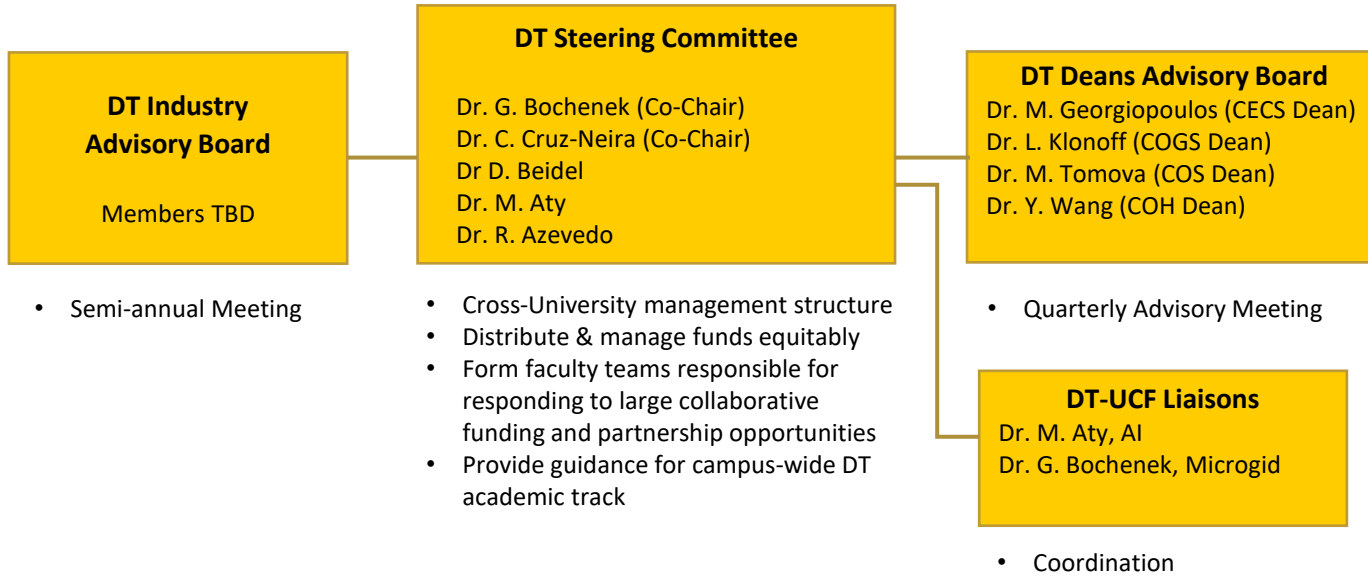
Digital Twin Initiative

- **VISION:** To have UCF lead the U.S.' global competitive advantage of innovative digital transformation by fostering collaboration across academia, industry, military and government towards the development of an integrated ecosystem of digital/physical twins, data, models, simulation, and analysis of systems' life cycle in a multi-domain environment.
- **Proposal Summary:** Establishing UCF as the academic leader for US' digital transformation addressing the new challenges of rapid and disruptive innovation capitalizing on UCF's M&S foundations and strengths to develop new collaboration and partnership paradigms to launch and scale research and business ventures. This requires defining a new campus-wide framework for innovation centered around a strategic emerging technology, Digital Twin, little explored in academic settings. We propose a campus-wide innovative, integrative, inclusive, and inspiring Digital Twin framework, that will enable us to intersect research and academics with industry and government partnerships to create transformative ventures with real-world impact.

Research Strategy

- Applied Research Focus with supportive Foundational Research:
 - Cycle of Design – Build – Deploy – Sustain
 - Accelerated decision making
 - Enhanced communications among teams
- Multi-disciplinary:
 - Large-scale transformative ventures
- Cross business sectors/domains:
 - Industry/government collaboration to drive standards, workflows and new technologies
 - Optimize the role of higher education in the emerging innovation landscape, enabling the generation and adoption of new technology at a pace that will keep America competitive
- Research to Market approach
 - Research results driving product solutions and specialized workforce
 - Innovative tech-transfer and commercialization pathways

Management & Advisory Structure

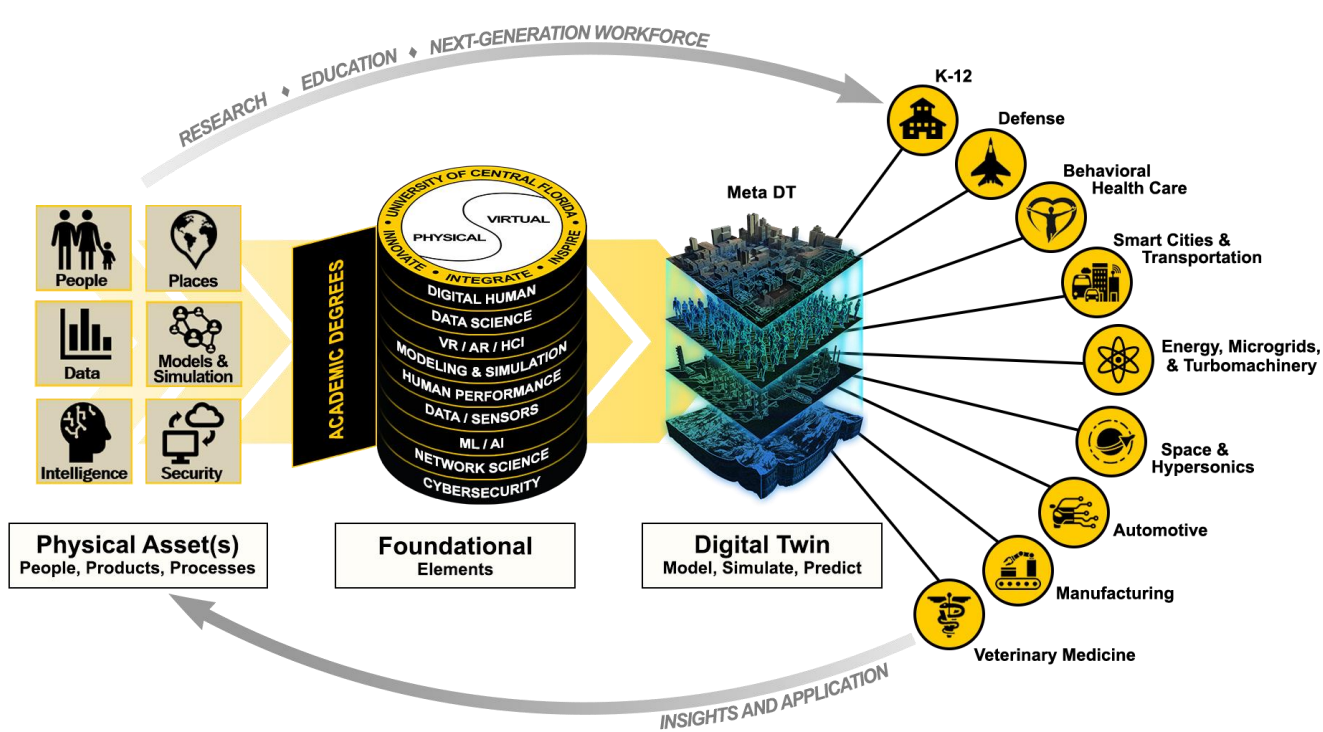


Achieving the Goal

- Faculty Hires, search starting fall 2022/spring 2023:
 - 3 new positions for the School of Modeling, Simulation and Training
 - 3 positions for the College of Engineering and Computer Science
- Flagship Living Lab Projects: visionary projects:
 - Transportation and Smart Cities: UCF Digital Twin Living Lab
 - Defense: Next Generation Soldier-Ground Vehicle Interface Design: Human Digital Twins
 - Behavioral Health Care Research: Development of digital twins of existing traumatic scenarios or relaxing spaces
- Targeted Workshops to develop strategy and identify partnerships
 - Strategic expertise needs driving faculty hires
 - Identify lab space and equipment needs
 - Determine near-term opportunities and teams for immediate impact
 - Select strategic partners

On-Going Efforts

- Osceola County Coalition - Microelectronics Digital Twin
- USSF Digital Twin
 - Support Multi-domain operations, test and evaluations
- Next Generation Soldier-Ground Vehicle Interface Design: Human Digital Twin
 - AI enabled capabilities, Soldier-Machine Interface
- Classified Digital Twin Efforts
 - Full range of research associated with classified Network, data & data management, simulation/analysis, interoperability & standards, and digital engineering
- Digital Twin Data Pipeline
 - Data flow interoperability for multi-domain utilization
- Other: Airport of the Future, Smart Cities, Energy Infrastructure



Discussion

Grace.Bochenek@ucf.edu

Carolina@ucf.edu

