



# Engineering Research Centers

# ERC

## Gen-4 ERC:

**Engineering Workforce Development (EWD)**

**NSF 19-503**

**Kickoff Meeting  
October 14-15, 2020**

**Sarit Bhaduri, Program Director, ERC/EEC/ENG**



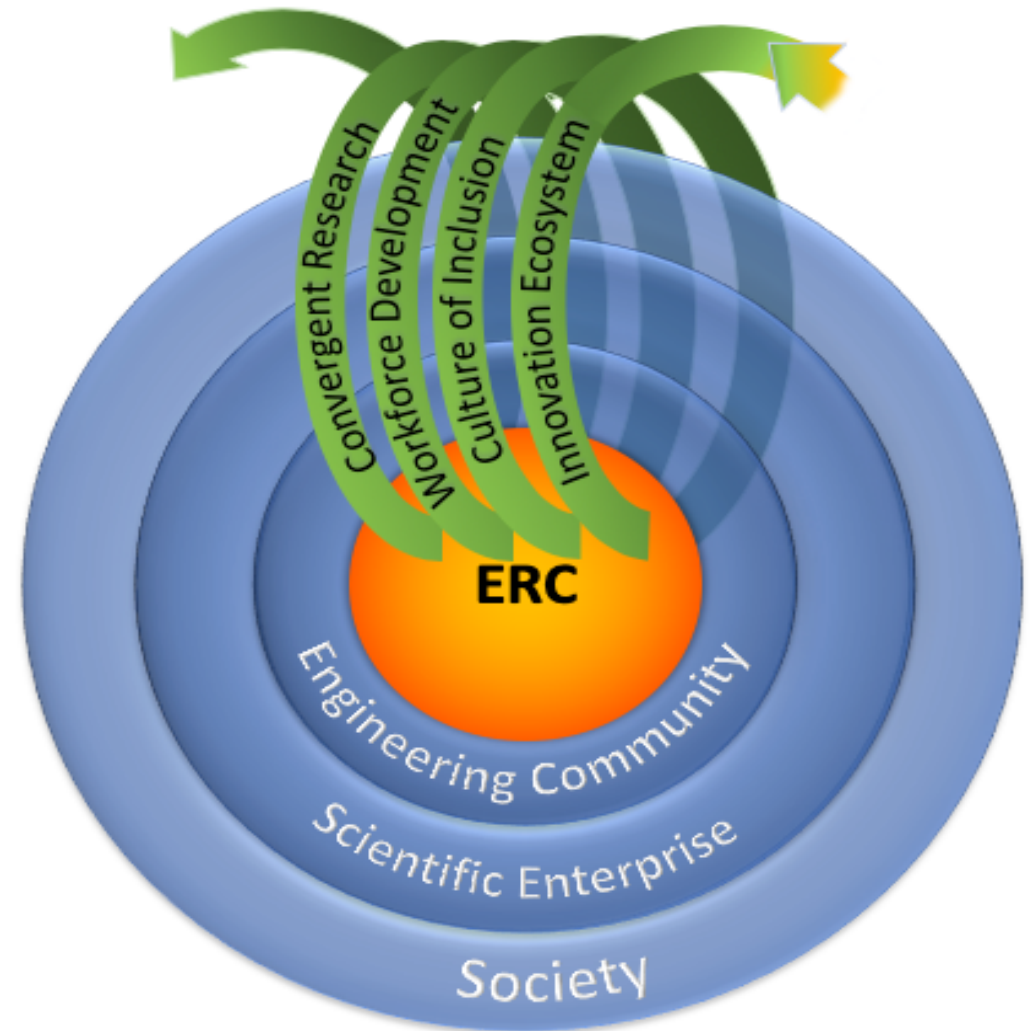
# Outline

- Introduction to Engineering Workforce Development (EWD)
- Signatures of EWD activities
- Expectations
- Integration aspects



# The Gen-4 Foundational Components (FCs)

- Convergent Research
- **Engineering Workforce Development (EWD)**
- Diversity and Culture of Inclusion (DCI)
- Innovation Ecosystem (IE)





# Engineering Workforce Development (EWD)



- A “Foundational Component” of an ERC
- Engages in human resource capacity development
- Driven by future needs
- Follows a robust spectrum of engineering education pathways
- Involves the entire ERC-relevant population



# Signatures of EWD



- Program Goals and Strategy
- EWD Outputs
- REU
- Integration
- Participation



# Expectations: EWD



- Implement evidence-based, best practices that will result in workforce with unique skill set
- Develop a logic model for the workforce development program to impart those characteristics through the ERC
- Independent assessment



## Expectations (Short Term) : EWD



- 90 days to develop strategic plan by building logic models defining skill sets required of graduates and designing suitable activities
- Ensure that program carries across all partner institutions
- Graduate and undergrad students engaged in research  $\leq 2:1$  ratio
- Logic Model/Assessment program to track progress and impact, e.g., # of students trained (output) and student trajectories (outcome)



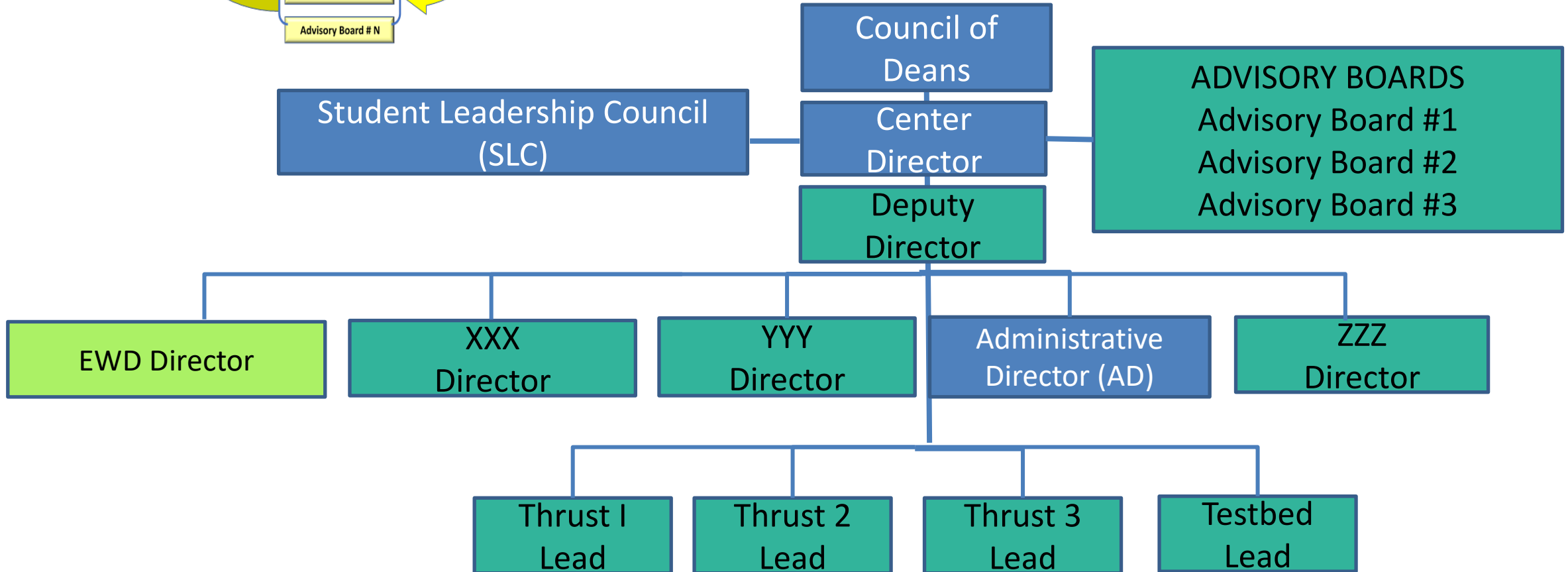
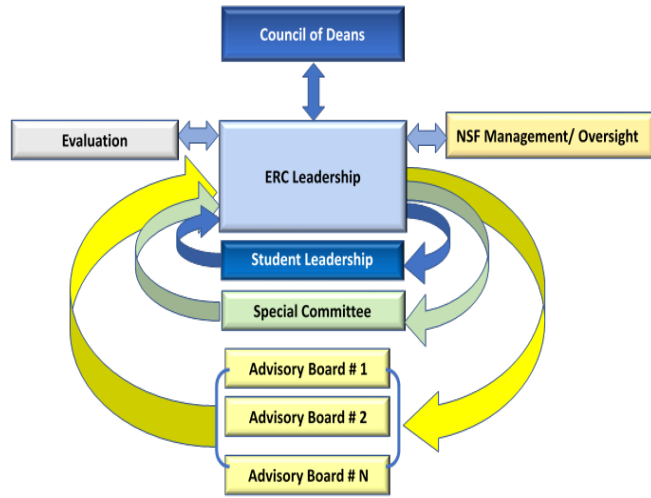
## EWD Integration

- Ensure that activities are not “siloed” from other ERC activities
- Reward ERC’s faculty and students for EWD activities and mentoring





# Sample Org Chart





# Expectations from the EWD Director



- Sets vision and strategic plan
- Coordinates curriculum development and assessment
- Builds and sustains integrated partnership with departments, university personnel, partner institutions



# EWD collaborations among centers



**Design and Development: NSF Engineering Research Centers Unite: Developing and Testing a Suite of Instruments to Enhance Overall Education Program Evaluation (Award Abstract# EEC-2023275; P.I. Adam Carberry, Arizona State University)**

- Identify the evaluation needs of currently-funded and future ERCs,
- Create a suite of evaluation instruments (both quantitative and qualitative),
- Develop an evaluator toolbox,
- Make the resources broadly available

[https://www.nsf.gov/awardsearch/showAward?AWD\\_ID=2023275&HistoricalAwards=false](https://www.nsf.gov/awardsearch/showAward?AWD_ID=2023275&HistoricalAwards=false)



## Questions?

Looking forward to seeing you in the kickoff meeting and responding to your questions