

Evaluation Plan

Sue Giancola, University of Delaware



Evaluation Team: Sue Giancola and Katrina Morrison

Lead Evaluator: Sue Giancola (giancola@udel.edu)

- Education

- PhD from University of Pennsylvania in Policy Research, **Evaluation**, and Measurement
- Masters from Penn State in **Management-Business Administration**
- Bachelors from University of Virginia in Systems **Engineering**

- Experience

- Over 25 years in evaluation
- Currently Senior Associate Director at the **Center for Research in Education and Social Policy (CRESP)**
- Teaches graduate and undergraduate courses in evaluation at the University of Delaware
- Active member in the American Evaluation Association
- Authored *Program Evaluation: Embedding Evaluation into Program Design and Development* (2021, Sage Publications)



Current and Past Evaluations Led by Giancola (partial list)

NSF MRSEC (UD CHARM/Led by UD)
NSF RPP (CS4DE/Statewide)
NIH CTR (UD/CCHS/Nemours/DSU/MUSC)
NSF ICORP (Led by Princeton)
NSF ADVANCE (UD)

HRSA LEND (DE/Statewide)
NSF PARTNER4CS (DE/Statewide)
NIH COBRE (DE Musculoskeletal)
NSF Cybersecurity (DE/Statewide)
NSF REUs (UD)

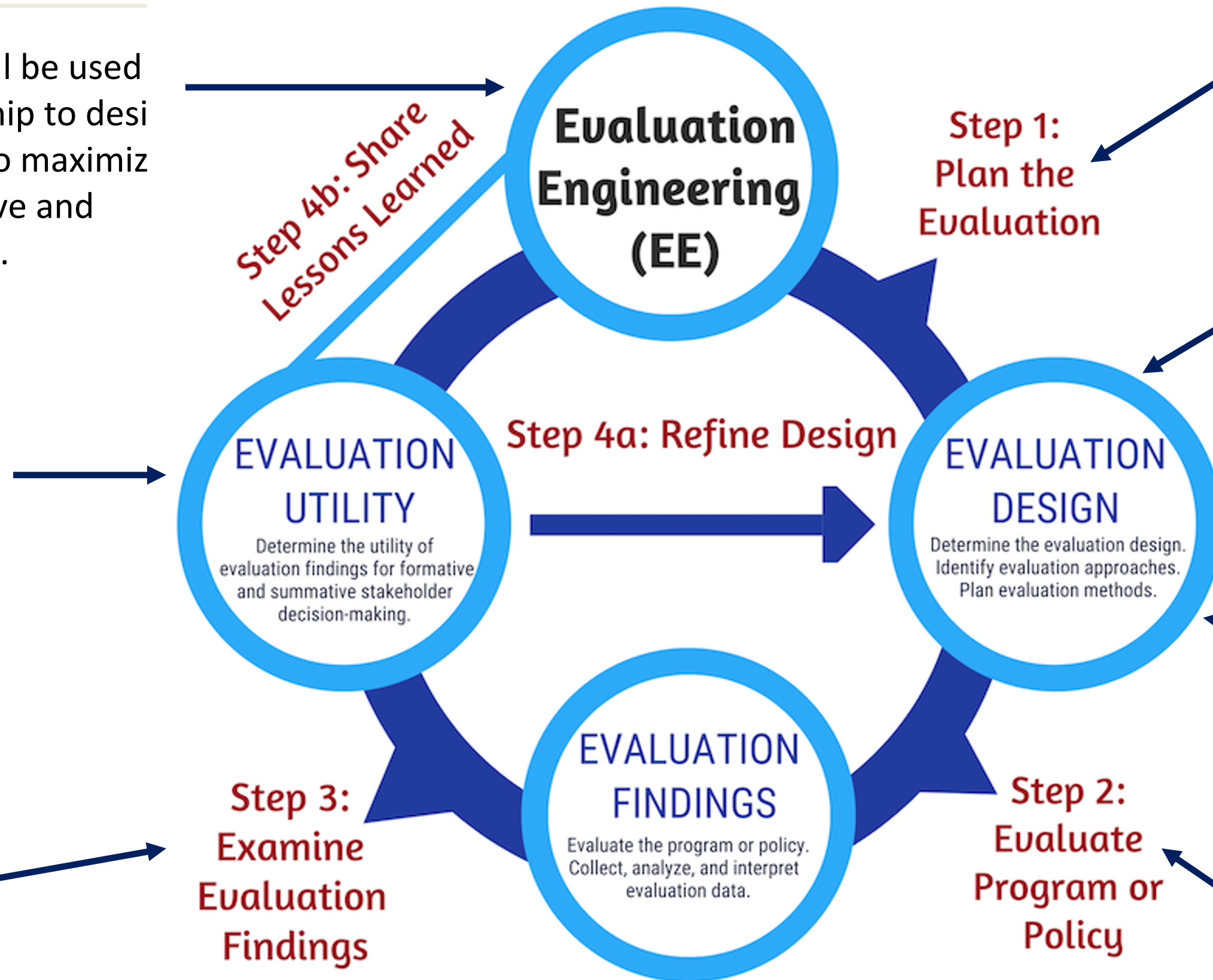
NSF FFW (Led by UD)
OSERS SEAL (DE/Statewide)
CDC WIC AERD (DE/Statewide)
OSERS DECATD (DE/Statewide)
NSF PREM (Led by DSU)

A Multi-Tiered Approach to Evaluation

Participatory evaluation will be used work with program leadership to desi studies and interpret data to maximiz their usefulness for formative and summative decision-making.

Utilization-focused evaluation (UFE) will be used to maximize the use of evaluation findings by the intended users of the evaluation.

Data-based decision-making principles will be used to drive program adjustments and decisions.



Theory-based evaluation (TBE) will be used to make explicit the logic linking IMWEL strategies to long-term goals.

Logic modeling will be used to represent the program's theory and outline program early and intermediate objectives.

Embedded evaluation (EMB-E) will be used to build evaluation into the program's theory.

A **quality improvement (QI)** approach will be used to foster continuous improvement of program operations.

Measuring Progress, Improvement, and Impact

- Implementation assessment
 - Document implementation progress of IMWEL program activities
- Formative evaluation
 - Inform, shape, and facilitate improvement of IMWEL
- Summative evaluation
 - Examine effectiveness and measure impact of IMWEL on advancing women's health

Theory

Implementing Center strategies

will lead to

Improved processes, systems,
and solutions

will lead to

Increased pipeline of
women's health engineers
and an advancement in
women's health

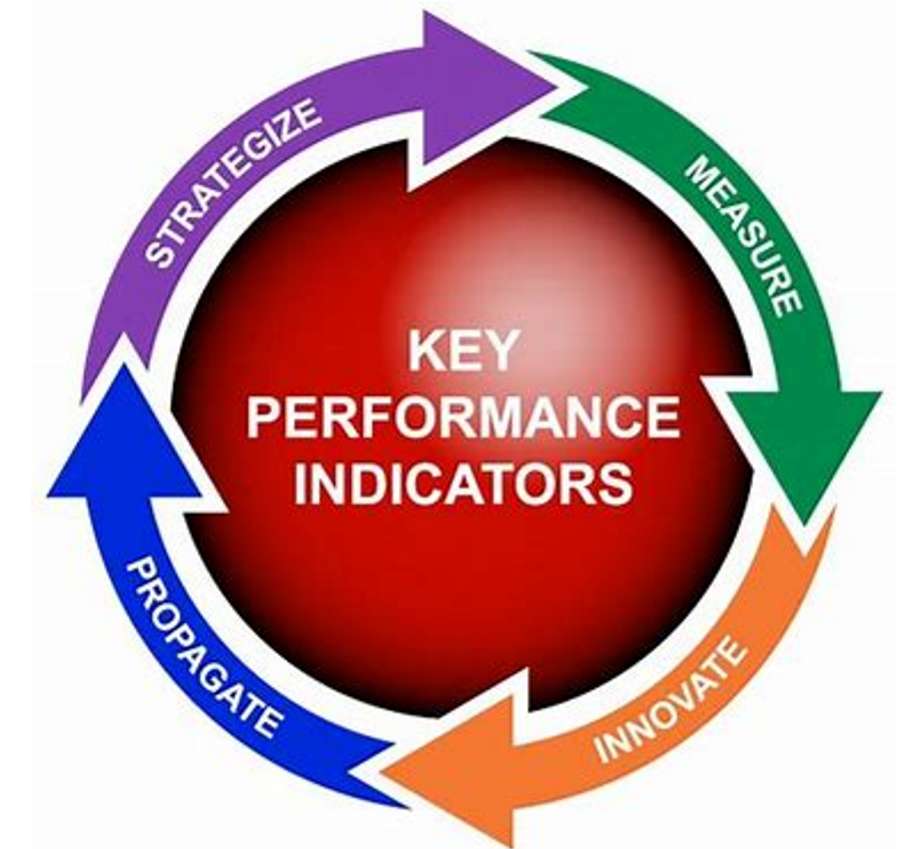
Evaluation Aims

- 1) **Define metrics** that guide data collection, analysis, and reporting to aid in directing IMWEL program improvement and the efficient use of resources;
- 2) **Monitor and report** progress towards IMWEL Center goals, via standardized reports and ongoing formal and informal feedback;
- 3) **Inform quality** of IMWEL Center activities by providing evaluation support, facilitating data-informed decision-making, and monitoring process improvements; and
- 4) **Develop and share best practices**, as well as lessons learned through the evaluation, within and beyond the ERC program.



Specific Aim 1: Define Metrics

1. Develop a logic model, collaboratively with leadership
2. Embed evaluation into the logic model, including implementation, formative, and summative evaluation
3. Create an evaluation matrix, defining indicators, data sources, and data collection timelines
4. Routinely revisit metrics, to ensure relevance to the program



Specific Aim 2: Monitor and Report Progress

1. Develop assessment processes for metrics/key performance indicators
2. Develop data collection procedures for key performance indicators
3. Share findings with leadership via informal discussions, monthly infographics, supplemental reports, quarterly meetings, and annual evaluation reporting
4. Collaboratively interpret findings to inform decision-making



Specific Aim 3: Inform Quality

1. Routinely meet with leadership to discuss evaluation needs
2. Provide ongoing evaluation support to design new evaluation studies to understand effectiveness
3. Monitor data collection processes and modify as necessary for continuous quality improvement
4. Operate as a *critical friend* by providing data to foster improvement, while presenting indicators of effectiveness and impact

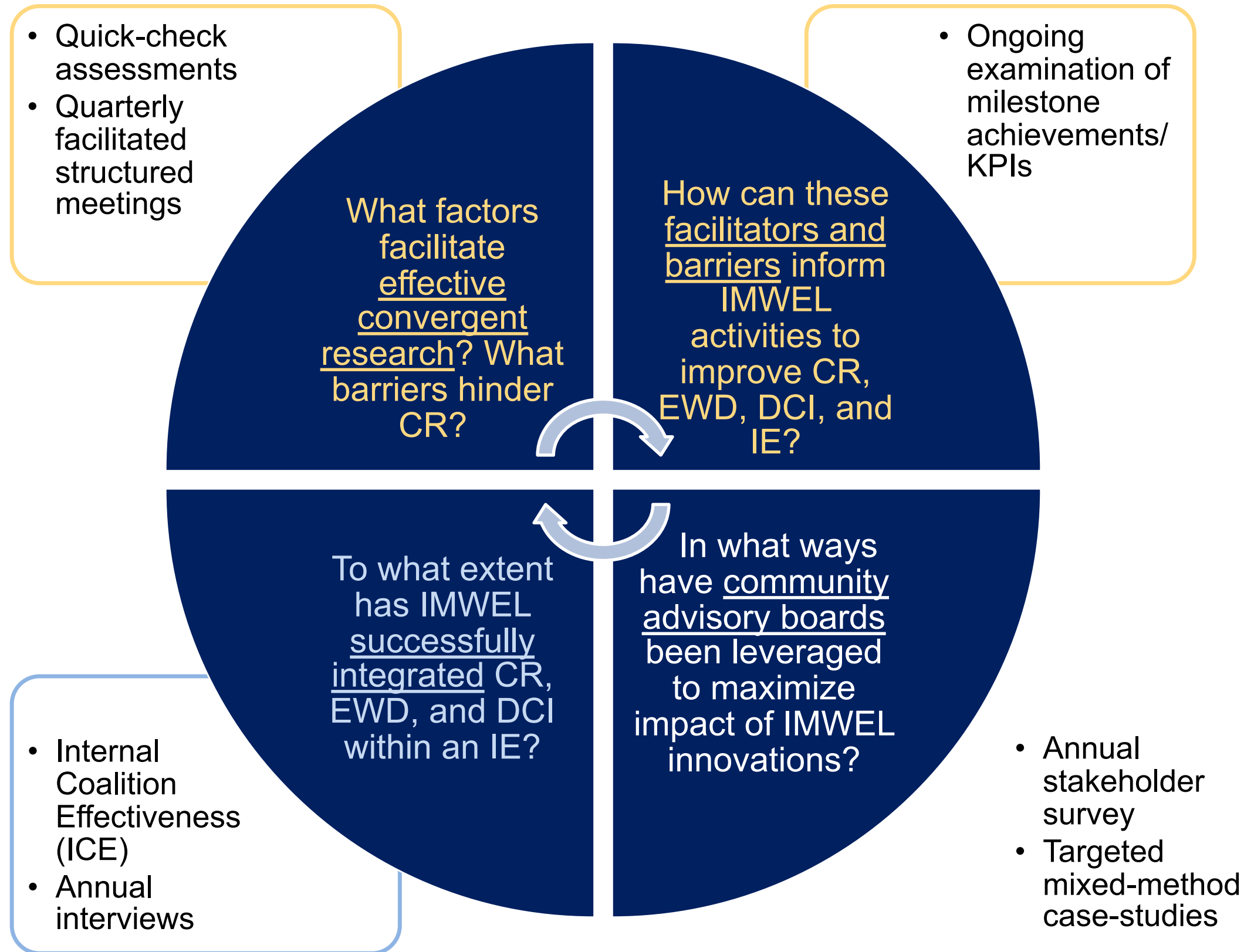


Specific Aim 4: Develop and Share Best Practices

1. Share lessons learned through multiple modalities
2. Participate in common data collection efforts and assist in evaluation activities to benefit ERC programs and NSF
3. Collaborate with ERC evaluation community on evaluation practices and instruments
4. Contribute to the knowledge base within the greater evaluation community on measuring the effectiveness and impact of large Center initiatives



Evaluation Questions and Methods



What societal impacts have been fostered by IMWEL through CR, EWD, DCI, and an IE? How has IMWEL impacted scientific enterprise, the engineering community, & women's health?

- Adapted Translational Science Benefits Model (TSBM): Product, public, economic, and policy benefits
- Ongoing tracking of collaborations, competencies, and achievements
- Targeted mixed-method case studies

Evaluation Support and QI

Convergent Research (CR) Teams

Systems Testbed Teams

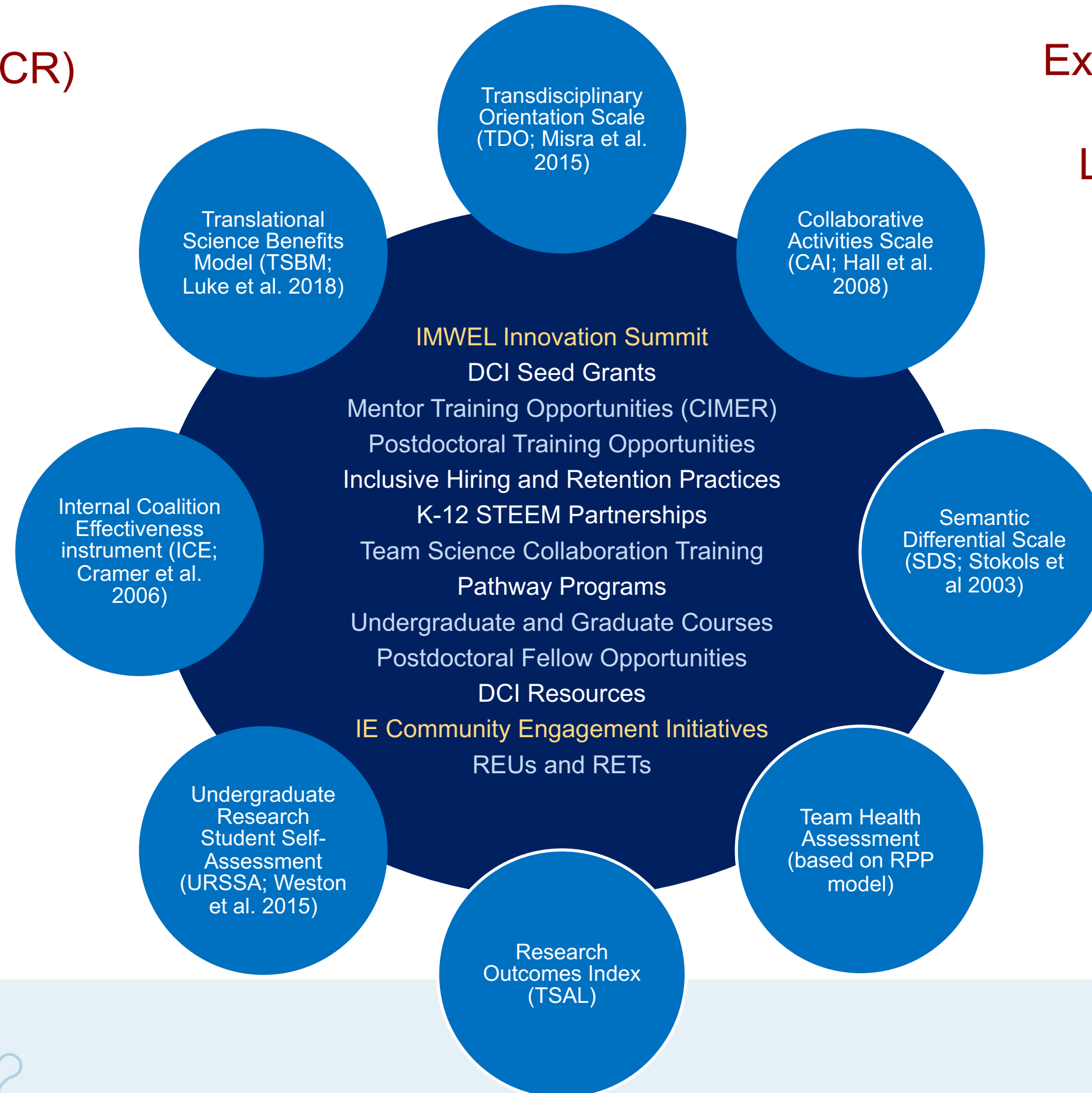
- (1. Preterm Birth;
- 2. Pelvic Floor Disorders,
- 3. Healthy Aging of Cardiovascular and Musculoskeletal Systems)

Research Thrust Teams

- (1. Experimental Cellular and Tissue Mechanics;
- 2. Tissue and Organ Mechanobiology;
- 3. Multiscale Theoretical Mechanics;
- 4. Mechanomics)

Enabling Technology Testbed Teams

- (1. Multiscale Biomechanical Computation and Imaging;
- 2. Mechano-Organs;
- 3. Clinically Deployable Devices;
- 4. Big Data and Bioinformatics)



Executive Committee

Leadership Team

Innovation Ecosystem (IE) Team

Diversity and Culture of Inclusion (DCI) Team

Engineering Workforce Development (EWD) Team

Advisory Boards

Evaluation Timeline and Priorities

YEARS 1-2

- Development of systems and processes for measurement, data collection, tracking, and evaluation
- Provision of data to guide formative decision-making to facilitate program development and improvement

YEARS 3-5

- Continued focus on formative evaluation to facilitate the Center's success in meeting its long-term goals
- Examination of intermediate indicators to understand if the Center is on track to meeting long-term goals

YEARS 6-10

- Evaluation of Center effectiveness and impact towards its long-term goals of enhancing engineering systems, increasing technology-driven solutions, creating a diverse pipeline of women's health engineers, and advancing women's health
- Continued provision of formative data to inform ongoing improvement and mid-course adjustments

Sharing of lessons learned and best practices within and beyond the IMWEL program

Ongoing collaboration, communication, and information sharing with IMWEL executive committee, leadership team, component leads, research thrust leads, and testbed leads



Questions?



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Evaluation Components

- 1) **Implementation assessment** to document implementation progress
- 2) **Formative evaluation** to inform, shape, and facilitate continuous improvement
- 3) **Summative evaluation** to examine effectiveness and measure impact

Evaluation Aims

- 1) **Define metrics** to foster program improvement;
- 2) **Monitor and report** progress towards goals;
- 3) **Inform quality** through data-informed decision-making; and
- 4) **Develop and share best practices** within and beyond the ERC.