Applied Research Model for [**Center for Freight Transportation for Efficient & Resilient Supply Chain (FERSC)**](https://fersc.utk.edu/)

1. **Imagination/Purpose-** What issues in the field are we inspired to research, given our areas of interest, concern, and expertise?
   1. What is the problem in the field that we want to contribute to solving?
   2. Why is this problem significant?
2. **Conception-** What conception of our project would lead us to generate the optimal research approach?
   1. Who would benefit from this solution?
   2. What needs to be understood?
   3. Who must we relate with to inform our understanding of the problem?
   4. How do we measure the implications of the problem and the solution?
   5. What dynamics do stakeholders indicate are problematic?
   6. What needs to be changed, transformed, or advanced?
   7. Who do we want to educate (stakeholder groups) about our observations, discoveries, and inventions?
   8. How do we execute the education?
3. **Design-** How do we want to design our work?
   1. What can we do to make or assist with these contributions?
   2. What tools and methods are available to develop the solution?
   3. What new tools and methods should we develop?
   4. How will we know we have accomplished our purpose?
   5. What factors should we consider when determining the time for completion?
   6. What resources can we gather for this project?
   7. What partners can we establish for this project?
4. **Implementation-** How will we execute our plan?
   1. What is our game plan?
   2. Who is on our team, encompassing academic, government, industry, non-profit, and community partners?
   3. What are each team member's responsibilities?
5. **Completion/Dissemination-** How can we best present our work for maximum uptake?
   1. Which audiences do we want our work product to reach?
   2. What documents, content, spreadsheets, and models would be most helpful?
   3. How do we prepare and present this information to partners and stakeholders so that it is accessible to the broadest audience?

**Principles:**

1. Project conception and design require more input and guidance from industry-experienced individuals.
2. Project execution then needs more direct dialogue with stakeholders in the field.
3. Academic rigor does not preclude tailoring material to be understood by relevant industry and government stakeholders.
4. Language and writing need more quality editing to communicate effectively with stakeholders.
5. Data, formulas, and methods must be presented with explanations that render them understandable and usable by primary users in the field.