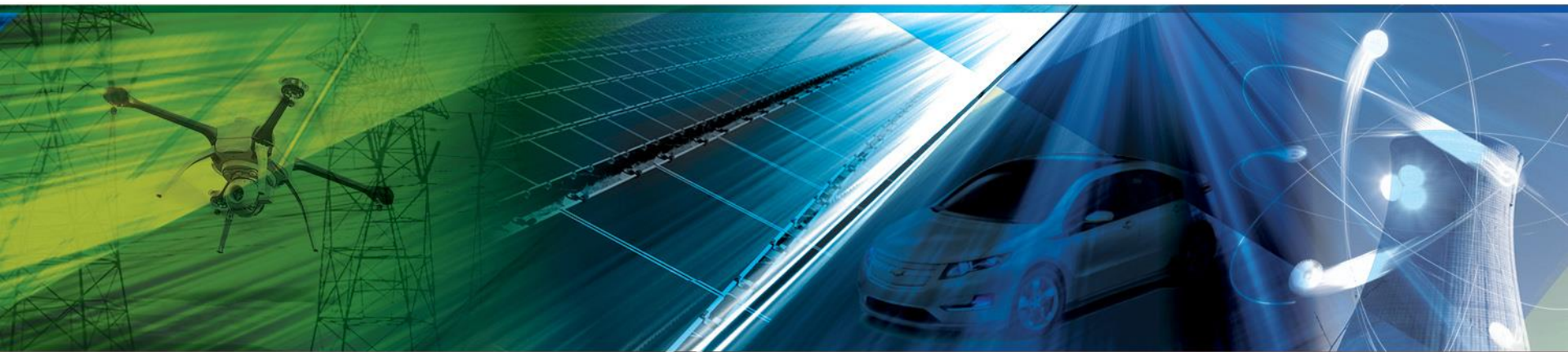


# Transmission and Distribution Next Generation Grid Components

Joe E. Schatz



**R&D**  
Research & Development

**SOUTHERN**  
**COMPANY**

# Materials Research



## Dielectrics

- Additives & materials to improve electrical and thermal performance
- Lab testing in 2016



## Structures

- Composite structure testing to continue through 2016



## Conductors

- Conductor aging tests underway

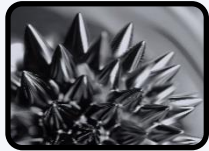


## Insulators

- Coatings in evaluation
- Hybrid insulators planned 2017

# Large Power Transformer Research

*Innovation Targeting the Core of the Transmission System*



New designs and materials for high performance operation



New chemical markers to improve health awareness



Analytics to generate fleet-wide health scores to optimize spending



Tools and sensors to decrease O&M costs



Technologies to extend the life of transformers while minimizing maintenance

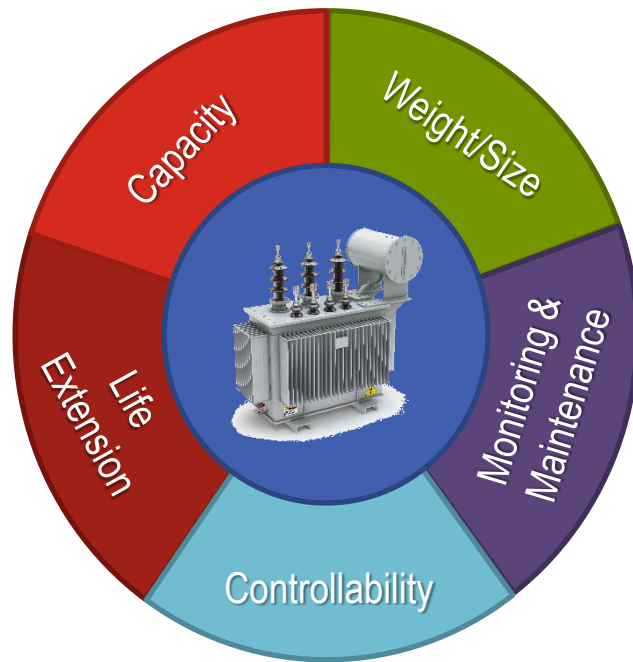


# Transformer of the Future Goal

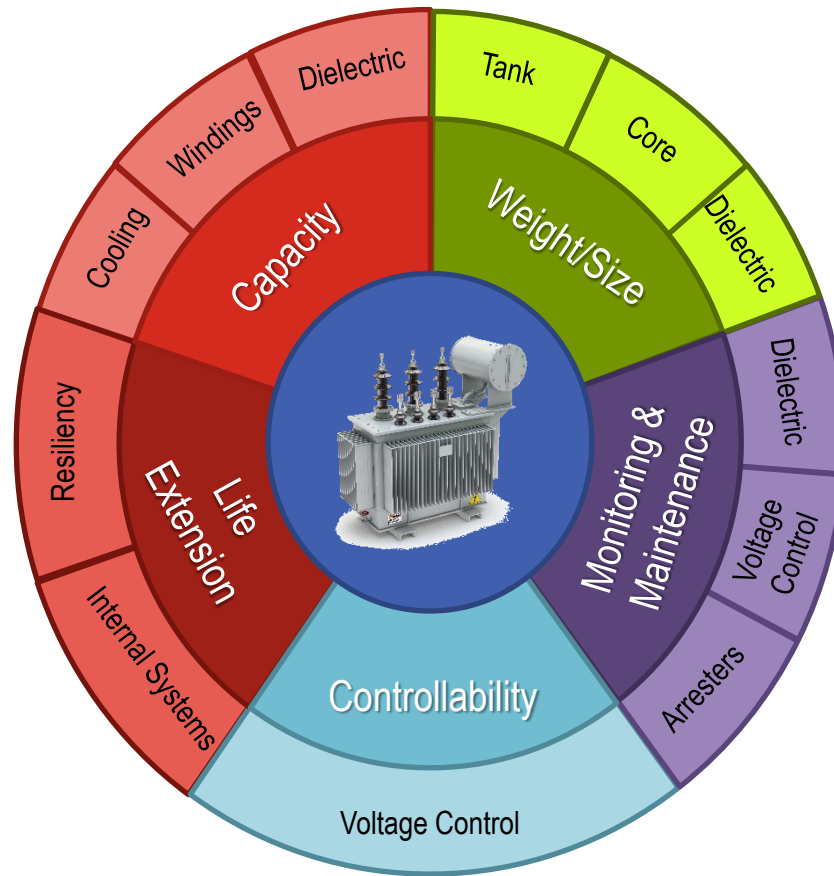
*Create a revolutionary power transformer by developing and integrating innovative technology at every component*



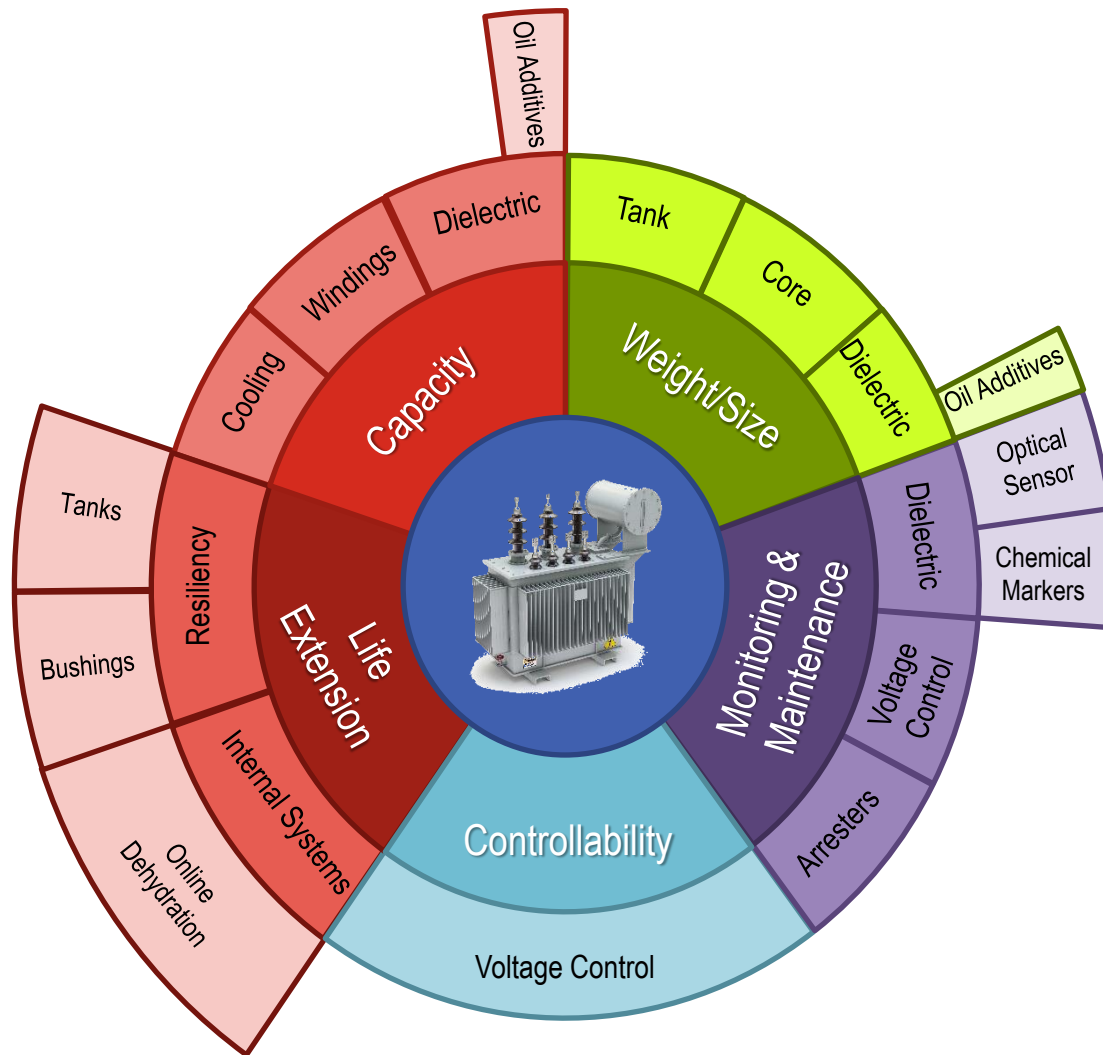
# Drivers



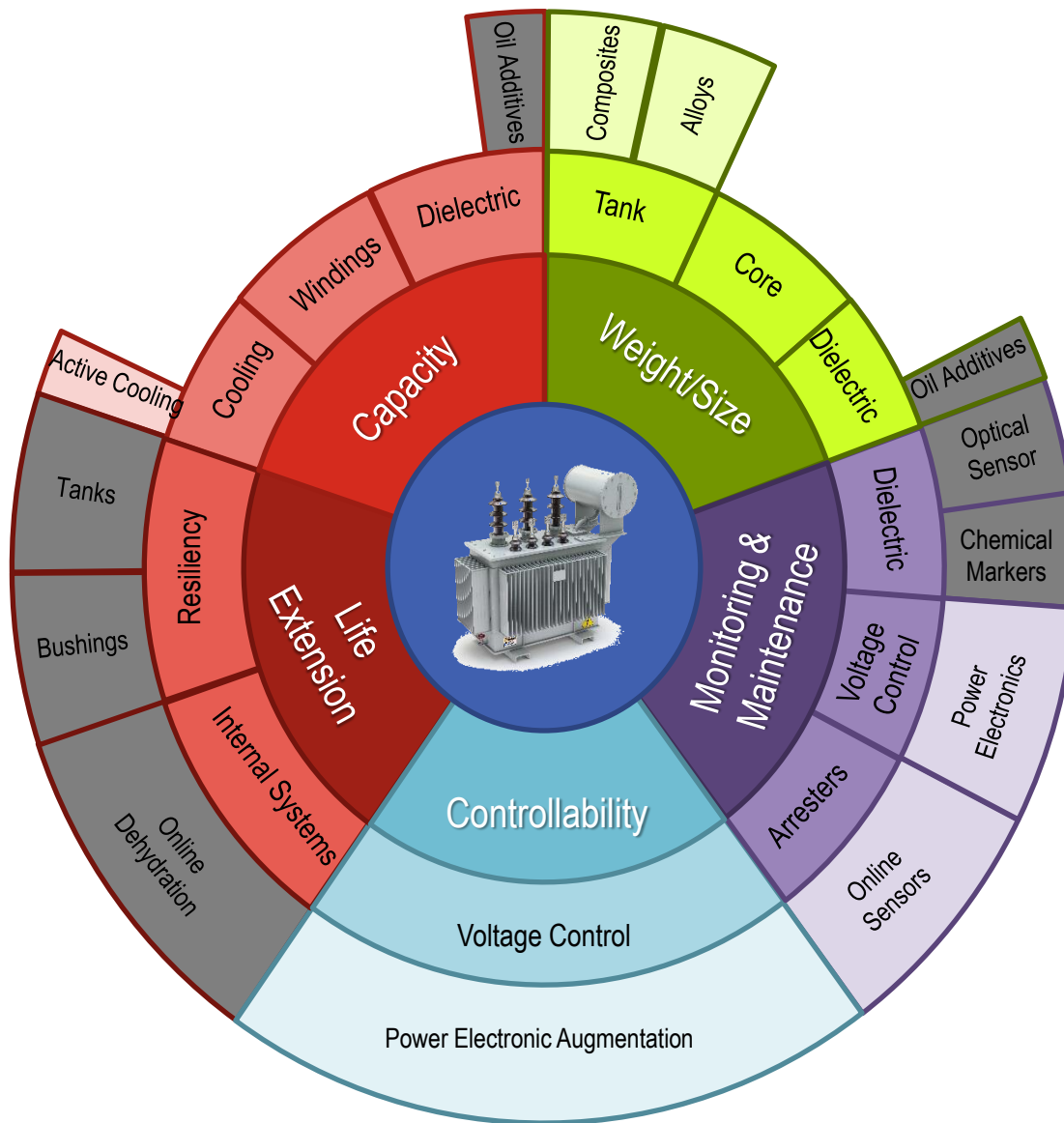
# Focus Areas



# Existing Research Tasks

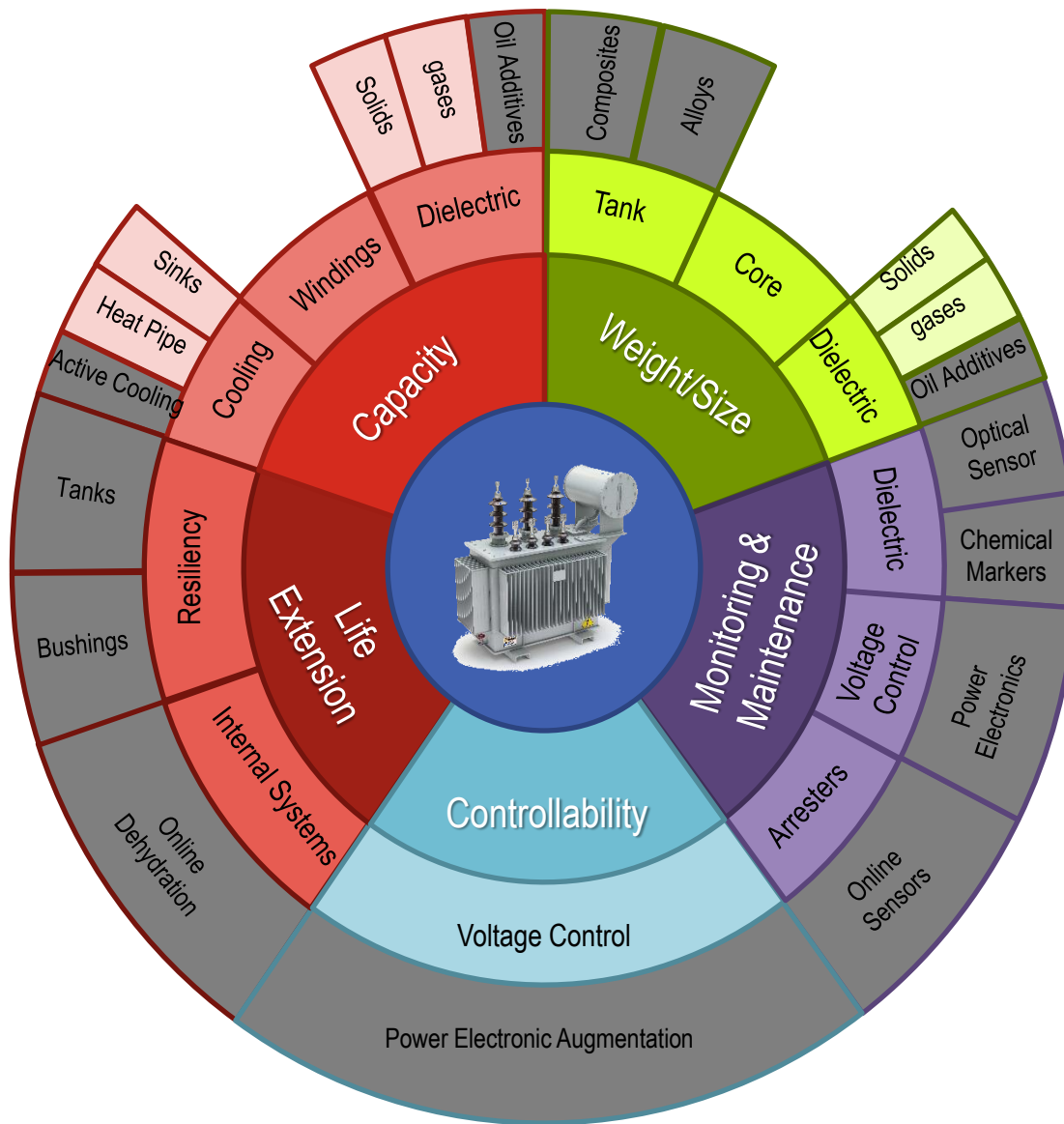


# 2017 Research Tasks

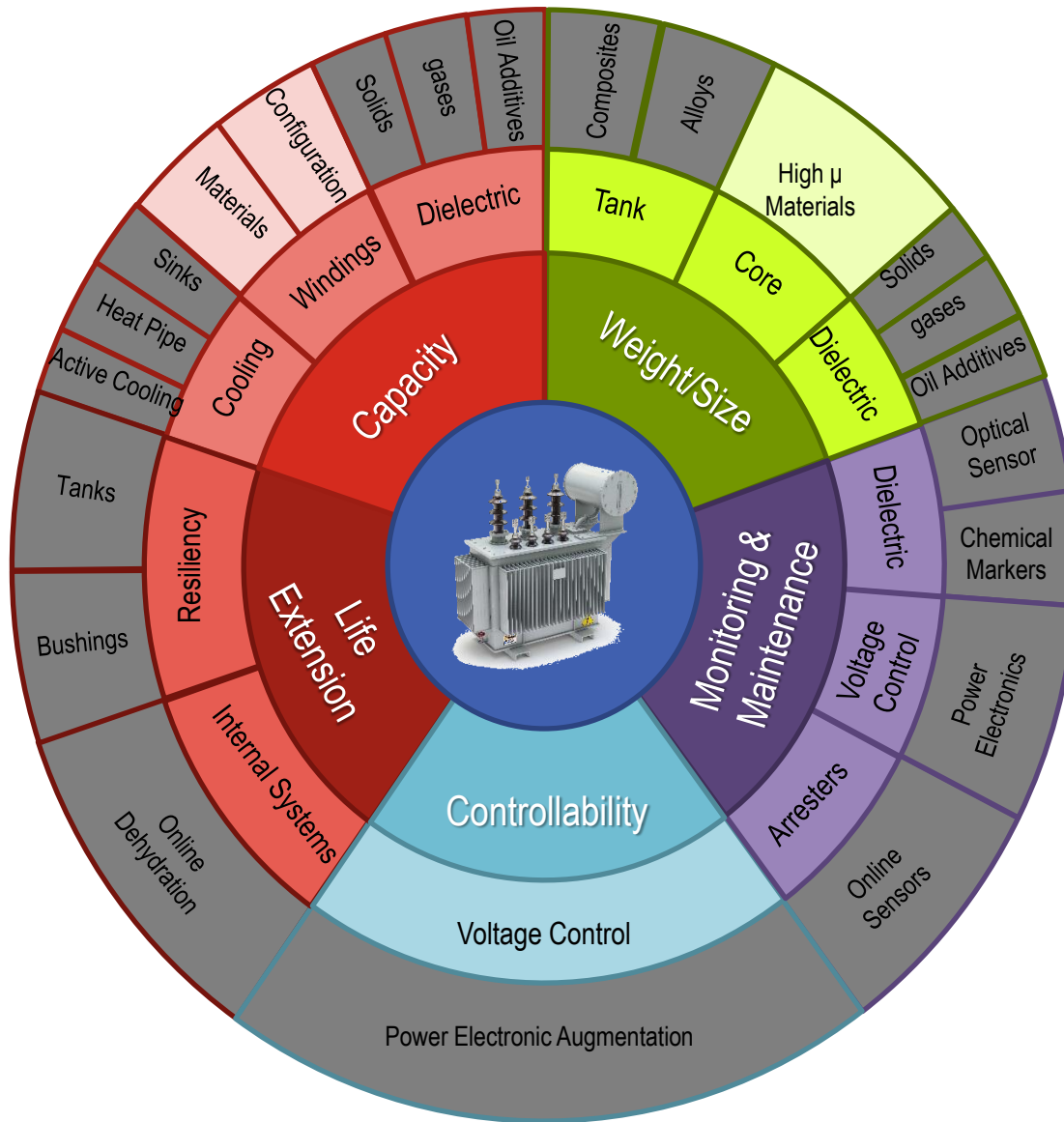




# 2018 Research Tasks



# 2019 Research Tasks



# Vision

