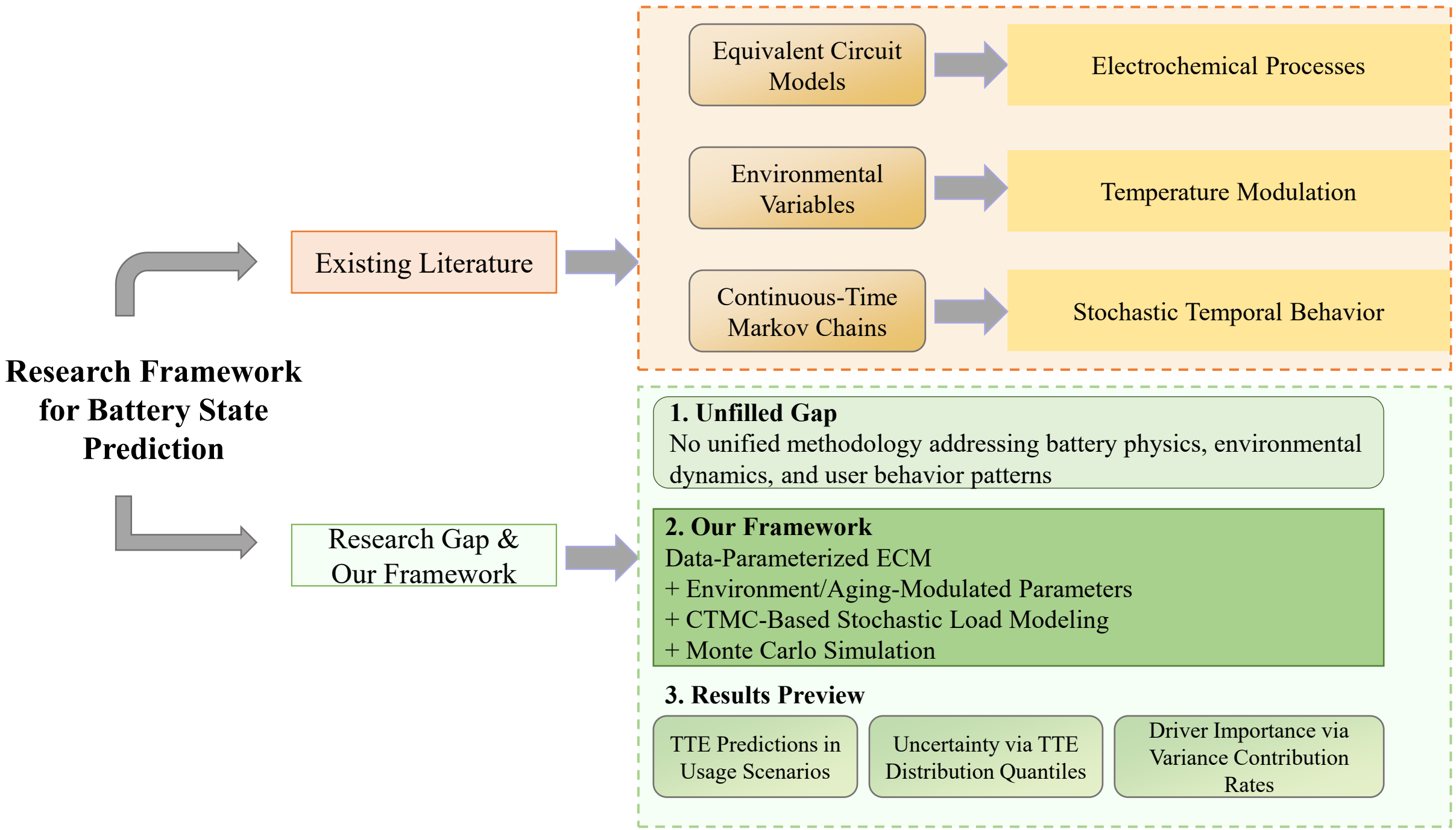
Research Framework for Battery State Prediction
Existing Literature
Equivalent Circuit Models
Electrochemical Processes
Environmental Variables
Temperature Modulation
Continuous-Time Markov Chains
Stochastic Temporal Behavior
Research Gap & Our Framework
1. Unfilled Gap
No unified methodology addressing battery physics, environmental dynamics, and user behavior patterns
2. Our Framework
Data-Parameterized ECM
+ Environment/Aging-Modulated Parameters
+ CTMC-Based Stochastic Load Modeling
+ Monte Carlo Simulation
3. Results Preview
TTE Predictions in Usage Scenarios
Uncertainty via TTE Distribution Quantiles
Driver Importance via Variance Contribution Rates