**A/B Testing Framework**

*Source: Case Study Framework*

A/B Testing Framework for Data Science:  
   
 1. HYPOTHESIS FORMULATION  
 - Define null and alternative hypotheses  
 - Specify success metrics  
 - Determine minimum detectable effect (MDE)  
 - Set significance level and power  
   
 2. EXPERIMENT DESIGN  
 - Randomization strategy  
 - Sample size calculation  
 - Test duration planning  
 - Control and treatment group allocation  
   
 3. IMPLEMENTATION  
 - Traffic allocation  
 - Data collection setup  
 - Monitoring and alerting  
 - Quality assurance checks  
   
 4. ANALYSIS  
 - Statistical significance testing  
 - Effect size calculation  
 - Multiple testing corrections  
 - Subgroup analysis  
   
 5. INTERPRETATION  
 - Business impact assessment  
 - Risk evaluation  
 - Decision making  
 - Documentation and communication  
   
 Common Pitfalls:  
 - Peeking at results early  
 - Not accounting for multiple testing  
 - Ignoring practical significance  
 - Not considering external factors  
 - Insufficient sample size