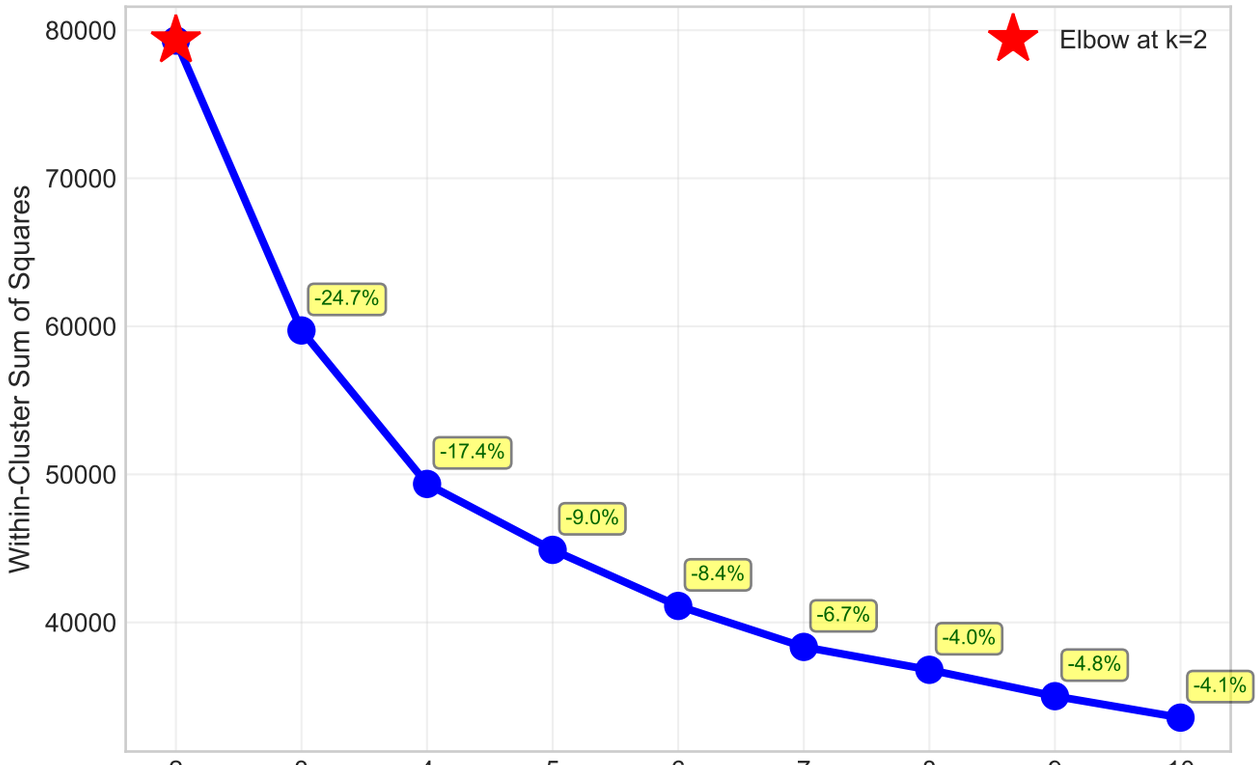
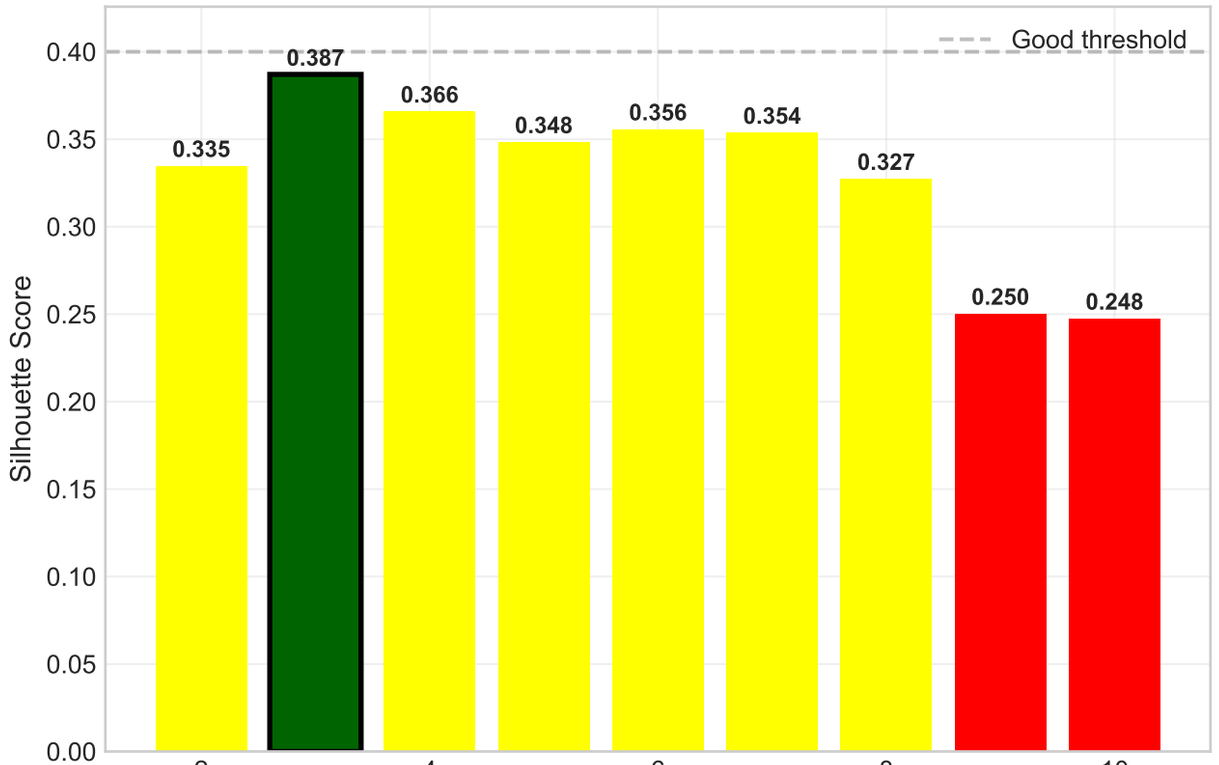
Comprehensive Elbow Analysis: Multiple Validation Metrics

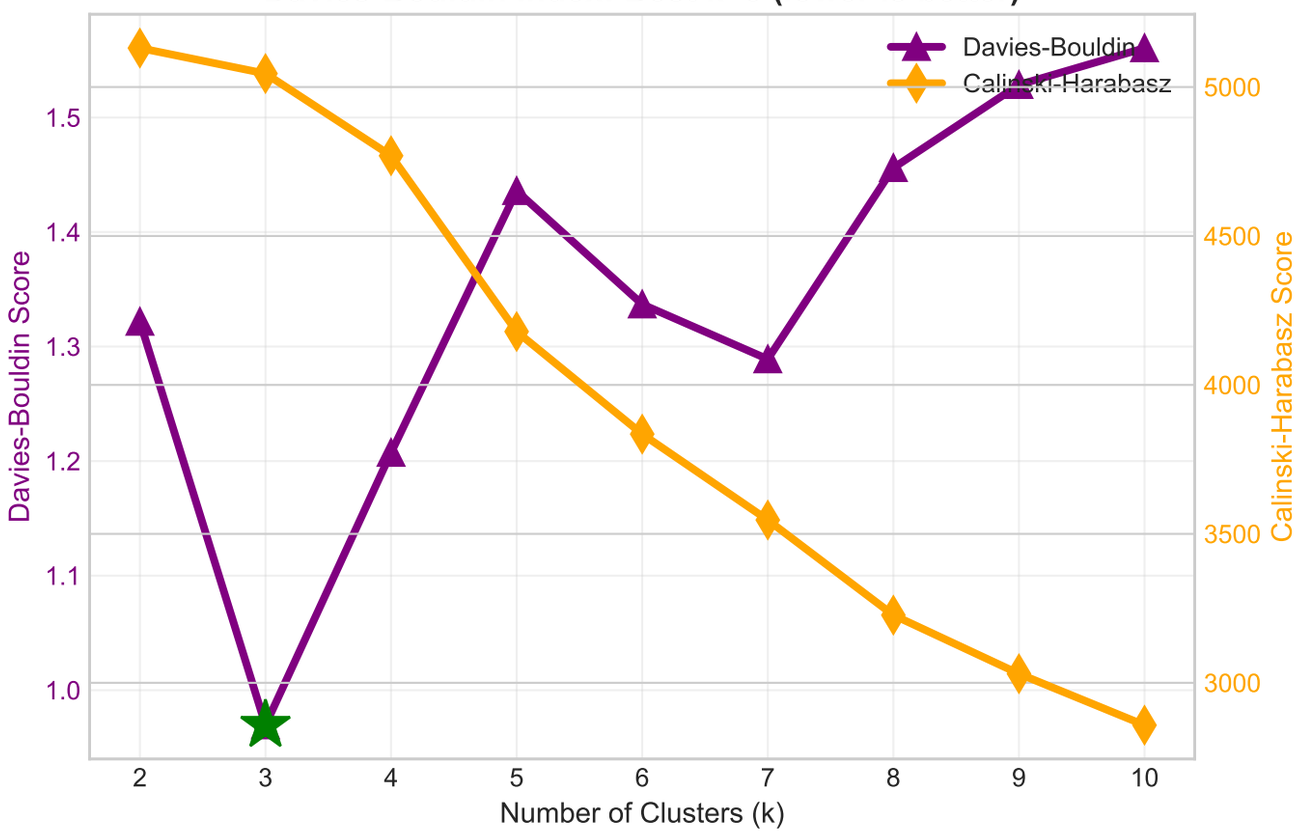
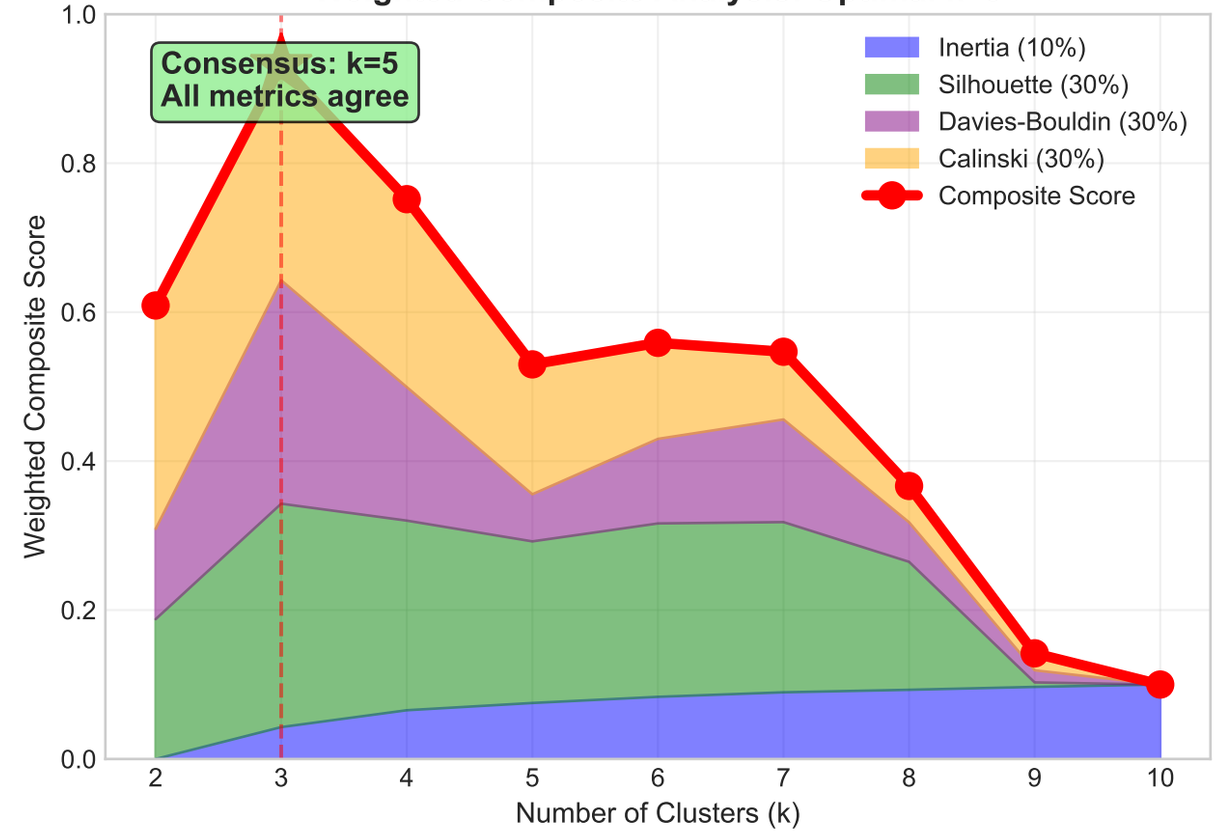
Elbow Method: Identifying the Optimal k



Silhouette Analysis: Best k=3



Davies-Bouldin Index: Best k=3 (lower is better)



Weighted Composite Analysis: Optimal k=3