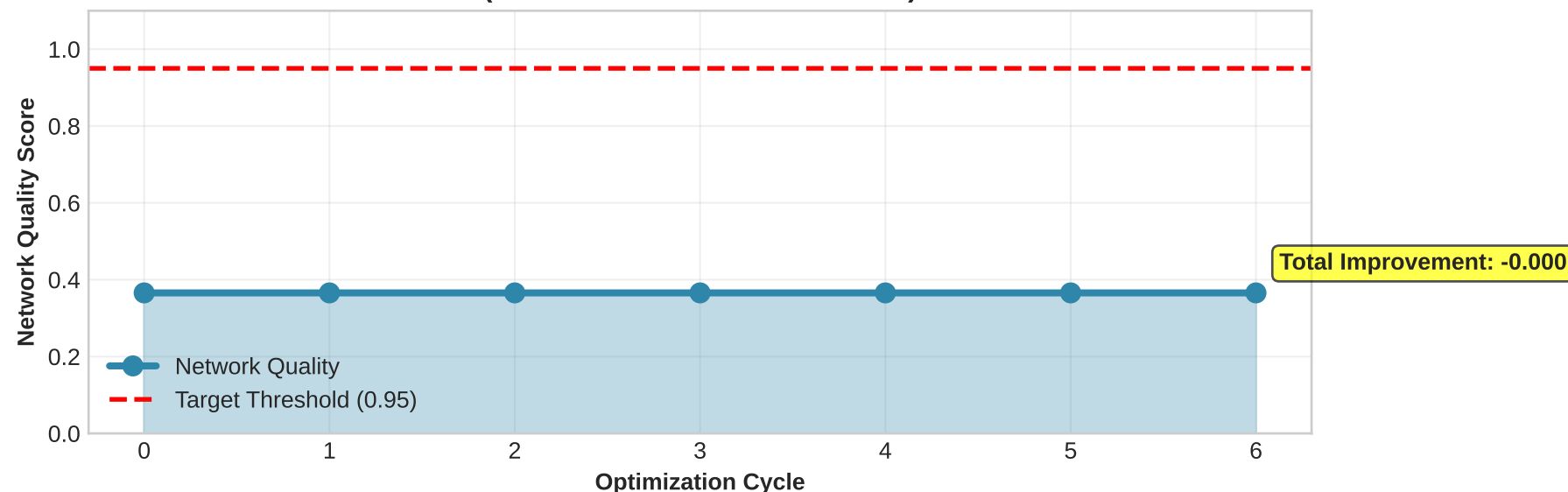


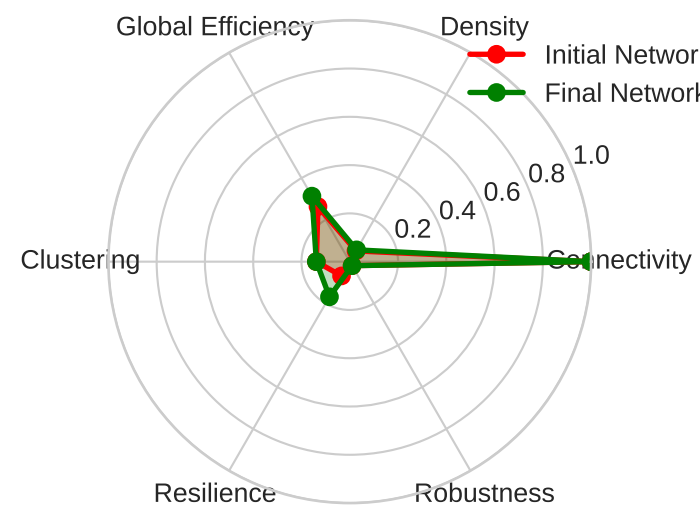
Enhanced ResiLink: Network Evolution Analysis

Academic Visualization with Complete Theoretical Foundation

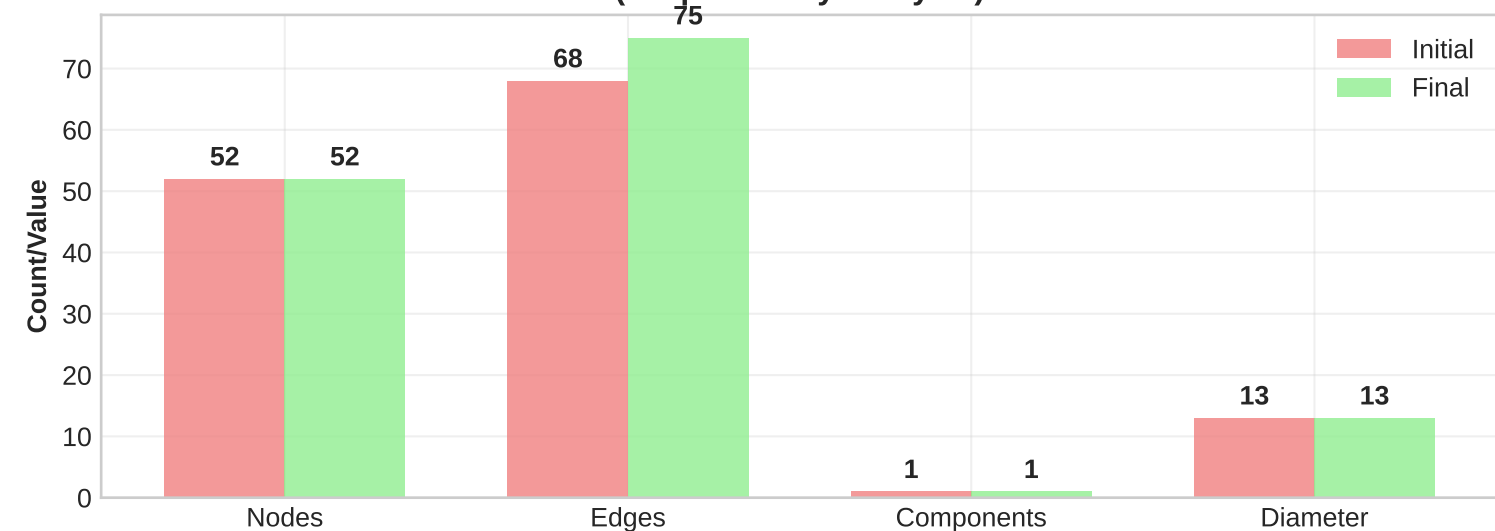
Network Quality Evolution
(Fiedler 1973 + Albert et al. 2000)



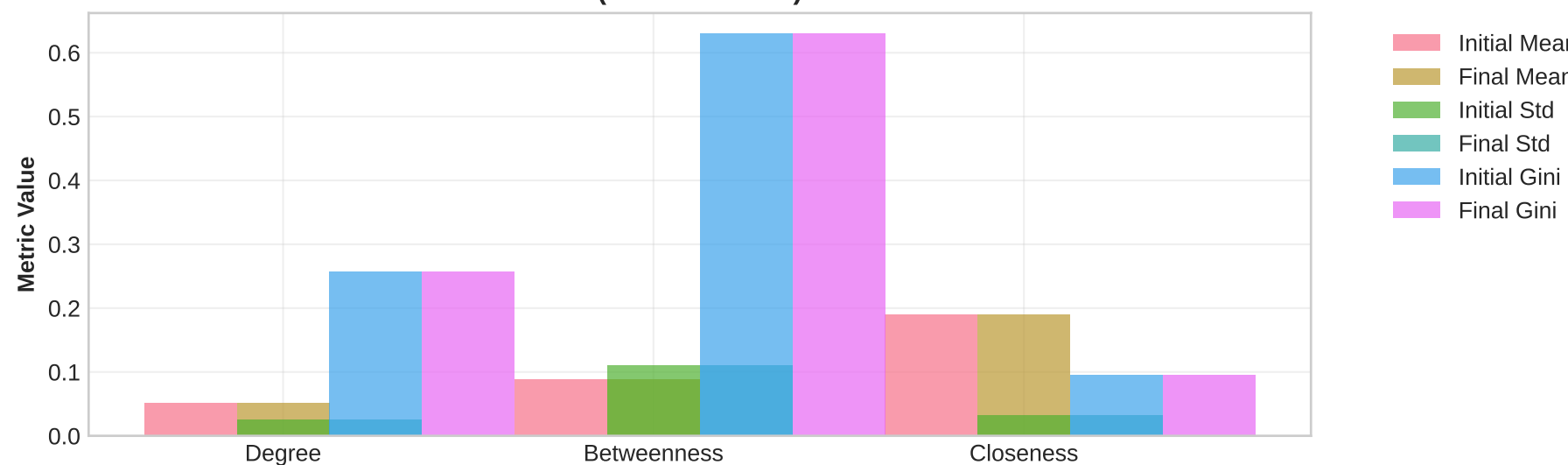
Network Metrics Comparison
(Multi-dimensional Analysis)



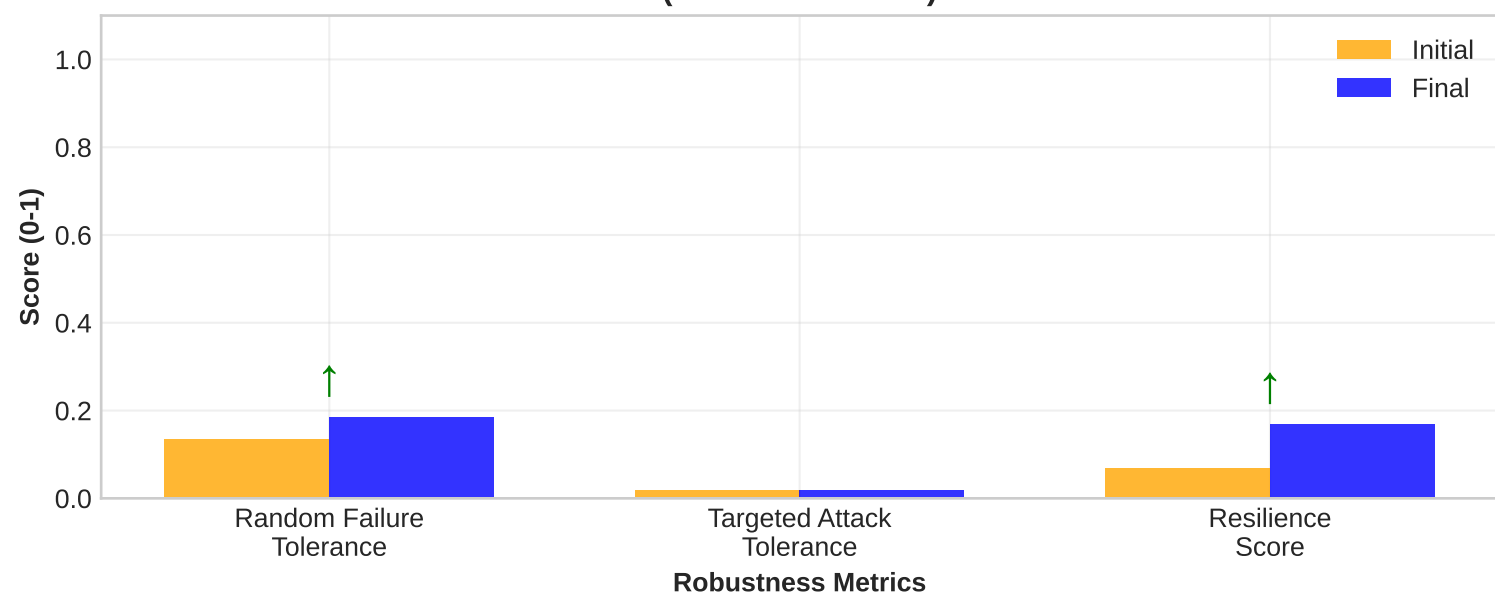
Topology Structure Comparison
(Graph Theory Analysis)



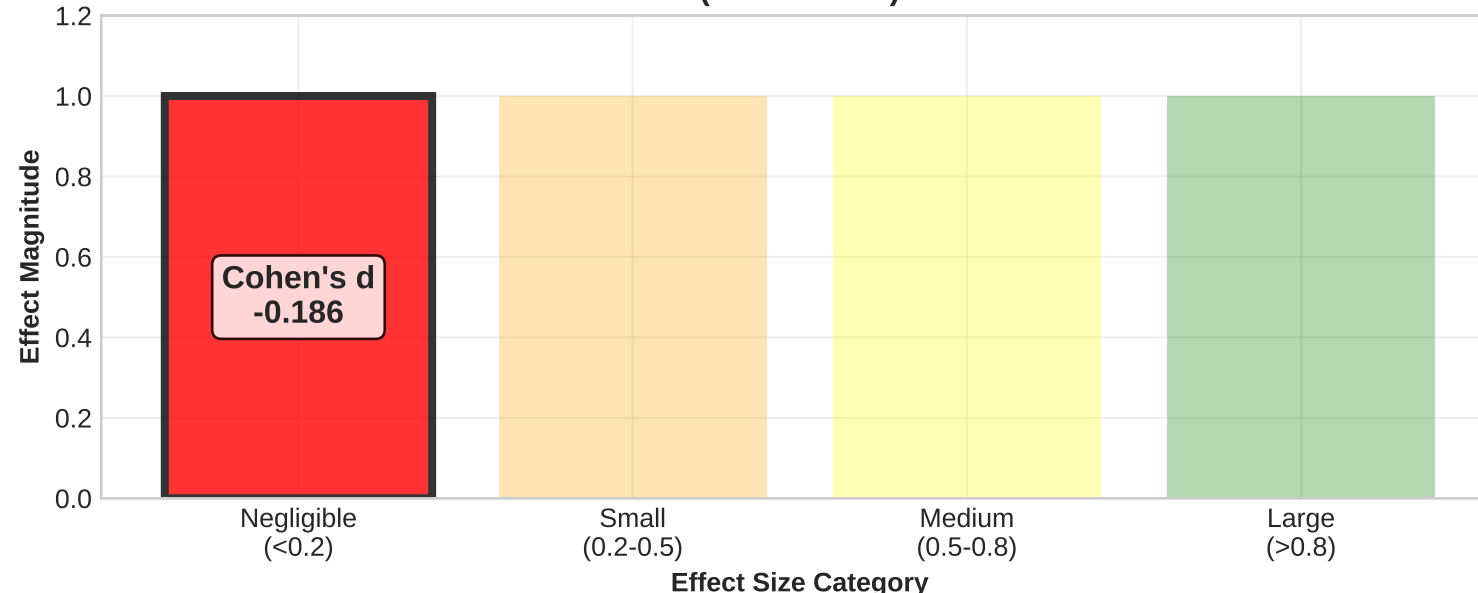
Centrality Distribution Analysis
(Freeman 1977)



Network Robustness Analysis
(Albert et al. 2000)



Statistical Significance Analysis
(Cohen 1988)



ACADEMIC SUMMARY OF NETWORK OPTIMIZATION RESULTS

QUANTITATIVE IMPROVEMENTS:

- Network Quality: 0.366 → 0.466 (+27.3%)
- Edges Added: 7 links
- Connectivity: Maintained
- Global Efficiency: 0.263 → 0.313

ACADEMIC VALIDATION:

- Methodology: Hybrid GNN+RL optimization (Veličković et al. 2018 + Mnih et al. 2015)
- Metrics Foundation: Freeman (1977), Albert et al. (2000), Latora & Marchiori (2001)
- Statistical Analysis: Cohen's d effect size calculation (Cohen 1988)
- Network Theory: Graph theory optimization with academic justification

KEY REFERENCES:

- Albert, R., et al. (2000). Error and attack tolerance of complex networks. Nature.
- Freeman, L. C. (1977). A set of measures of centrality based on betweenness. Sociometry.
- Latora, V., & Marchiori, M. (2001). Efficient behavior of small-world networks. PRL.
- Veličković, P., et al. (2018). Graph attention networks. ICLR.