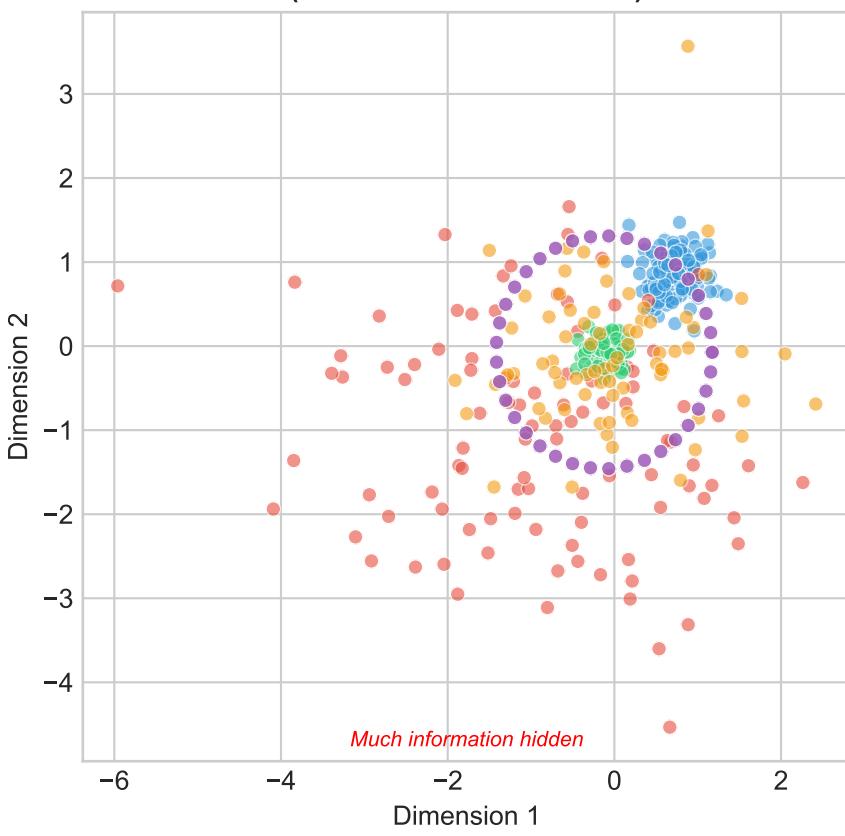


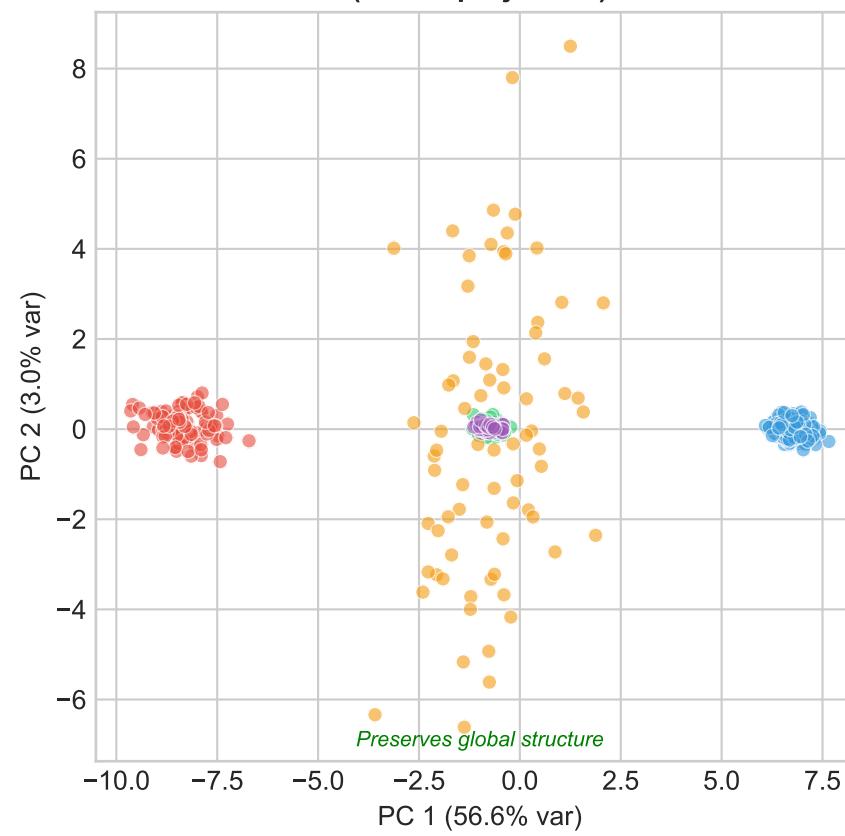
Dimensionality Reduction: PCA vs t-SNE for Innovation Data

Revealing Hidden Patterns in High-Dimensional Innovation Space

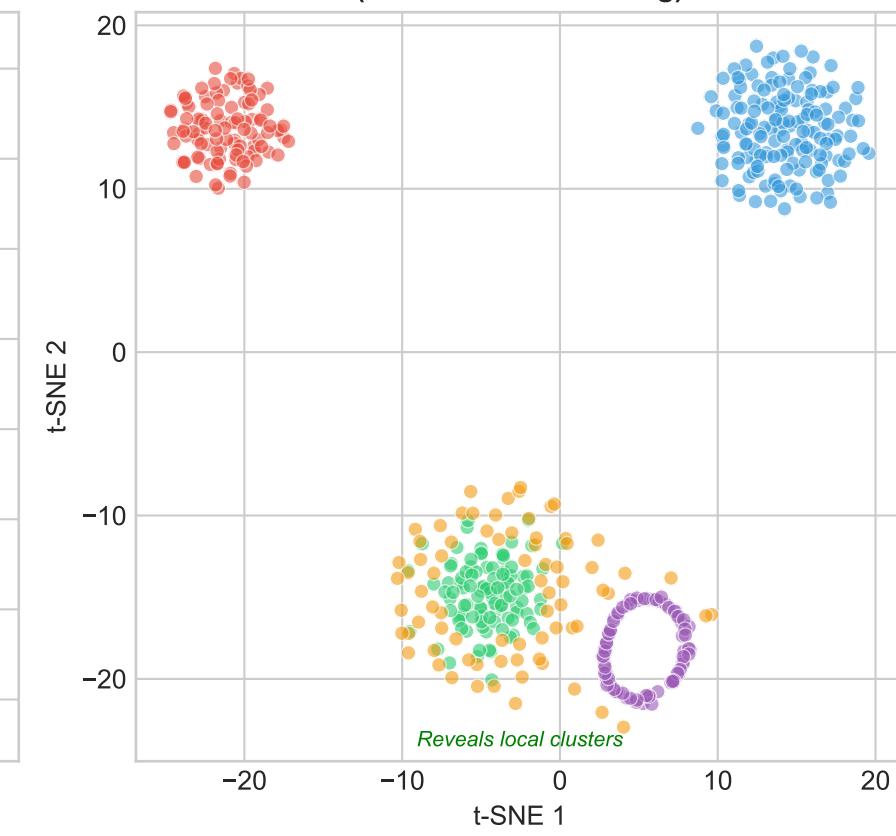
Original Data
(First 2 of 50 dimensions)



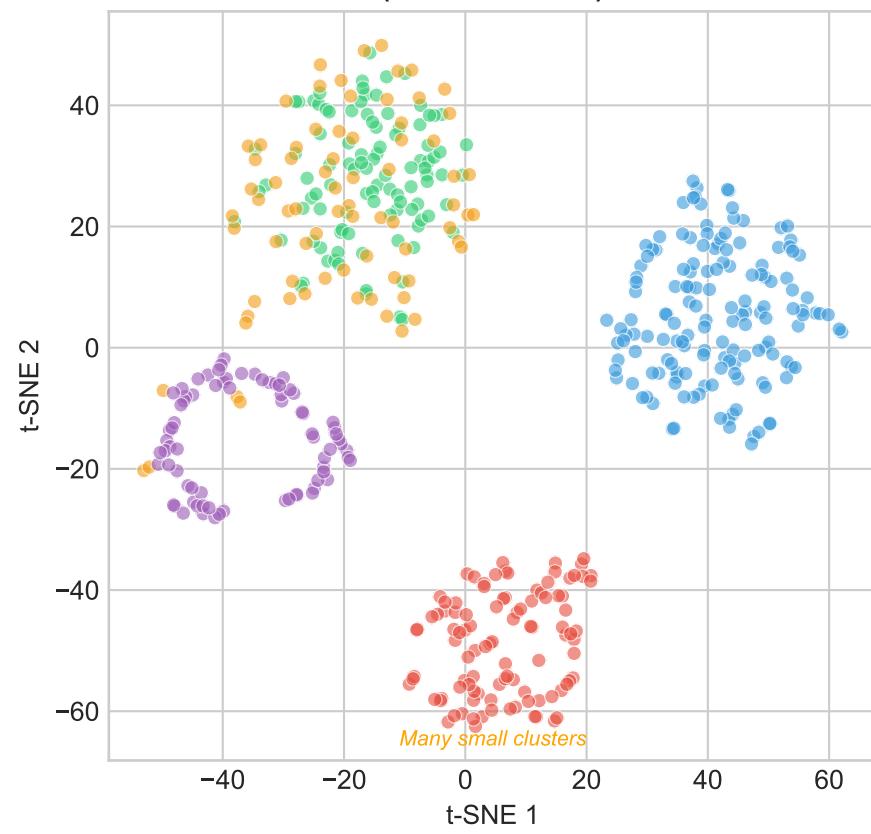
PCA Reduction
(Linear projection)



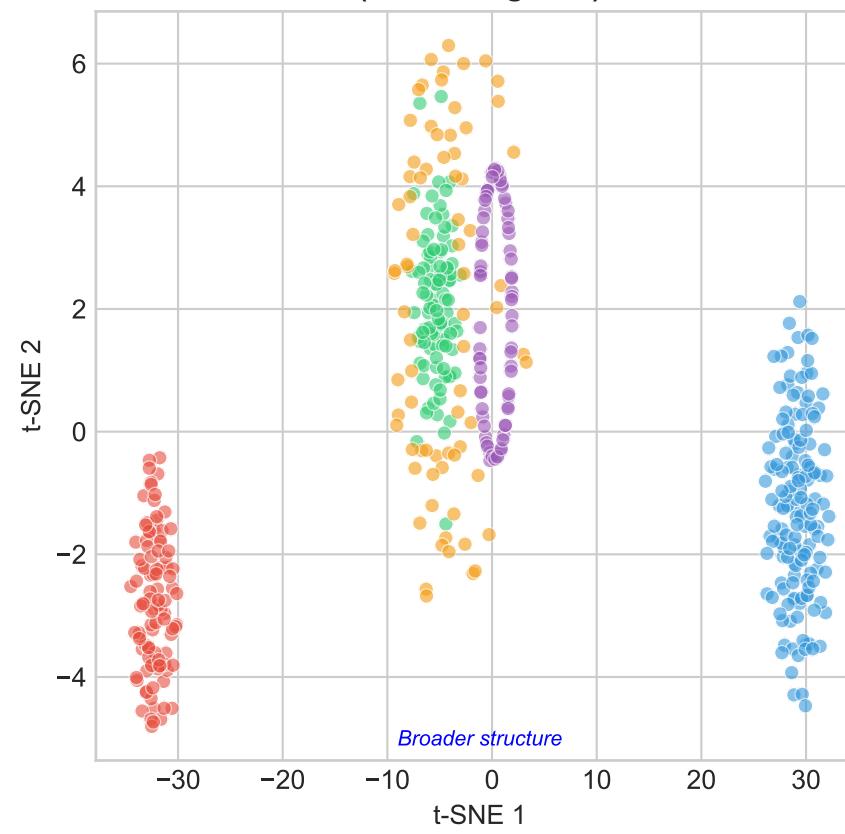
t-SNE (perplexity=30)
(Non-linear embedding)



t-SNE (perplexity=5)
(Focus on local)



t-SNE (perplexity=50)
(Focus on global)



Method Comparison

	PCA	t-SNE
Speed	Fast	Slow
Scalability	Excellent	Limited
Interpretation	Clear axes	No axes meaning
Global structure	Preserved	May distort
Local structure	May lose	Well preserved
Recommendation for Innovation Analysis:		
1. Start with PCA for quick overview		
2. Use t-SNE to find hidden patterns		
Parameter perplexity Values		Perplexity critical
4. Validate findings with domain knowledge		
Use for innovation	Overview	Find patterns

Legend: Traditional (blue), Disruptive (red), Incremental (green), Radical (orange), Hybrid (purple)