
Bibliometrics for Technology Forecasting and Assessment

A Preliminary Application to Human Enhancement

Marcus John & Frank Fritsche

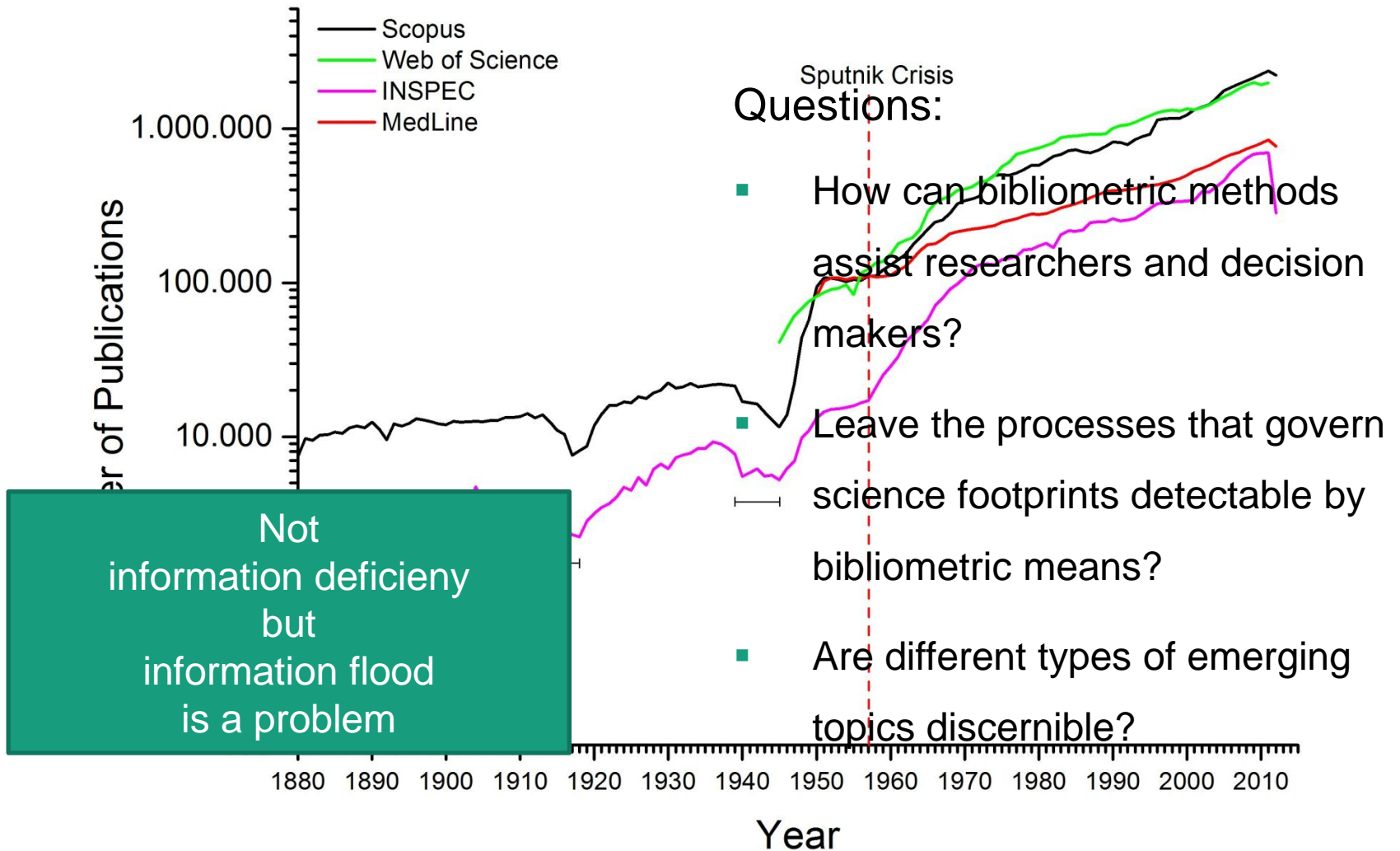
Fraunhofer Institute for
Technological Trend Analysis,

Euskirchen, Germany

PACITA

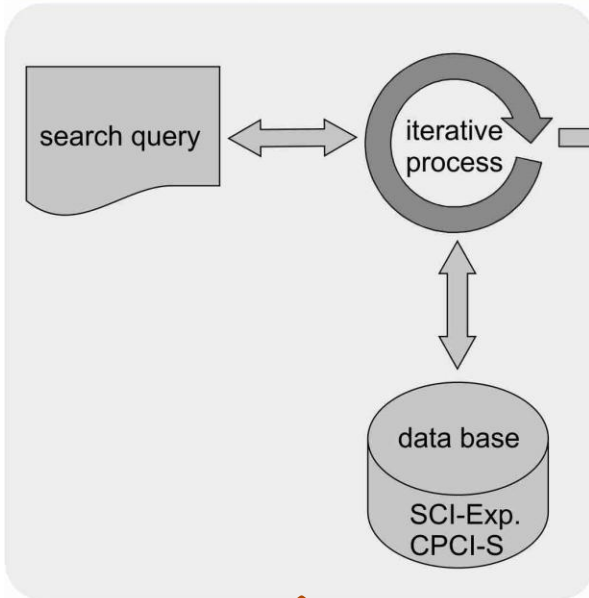


Introduction

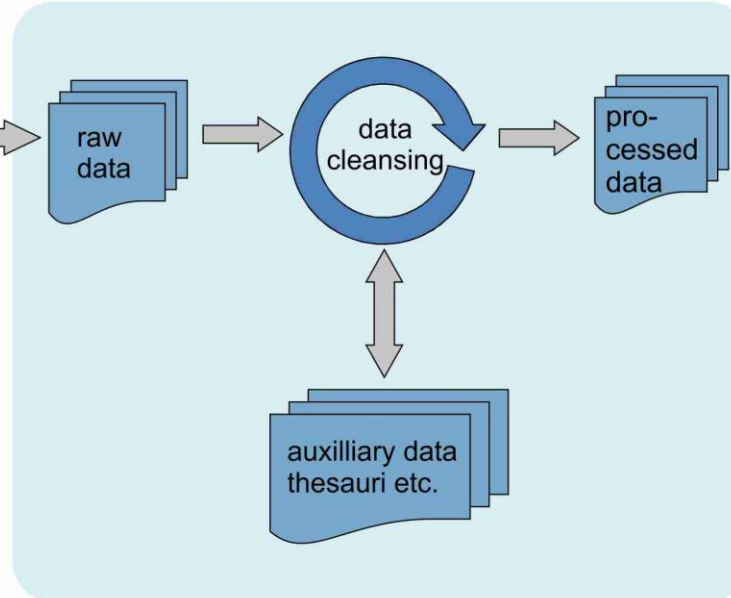


The Bibliometric Workflow

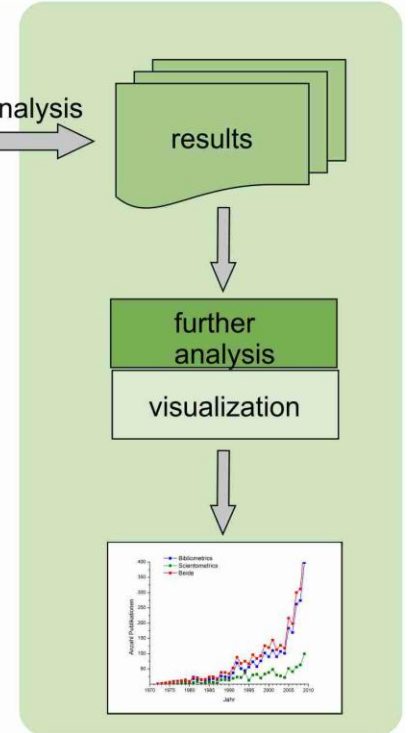
Pre-Processing in Web of Science



Local Processing



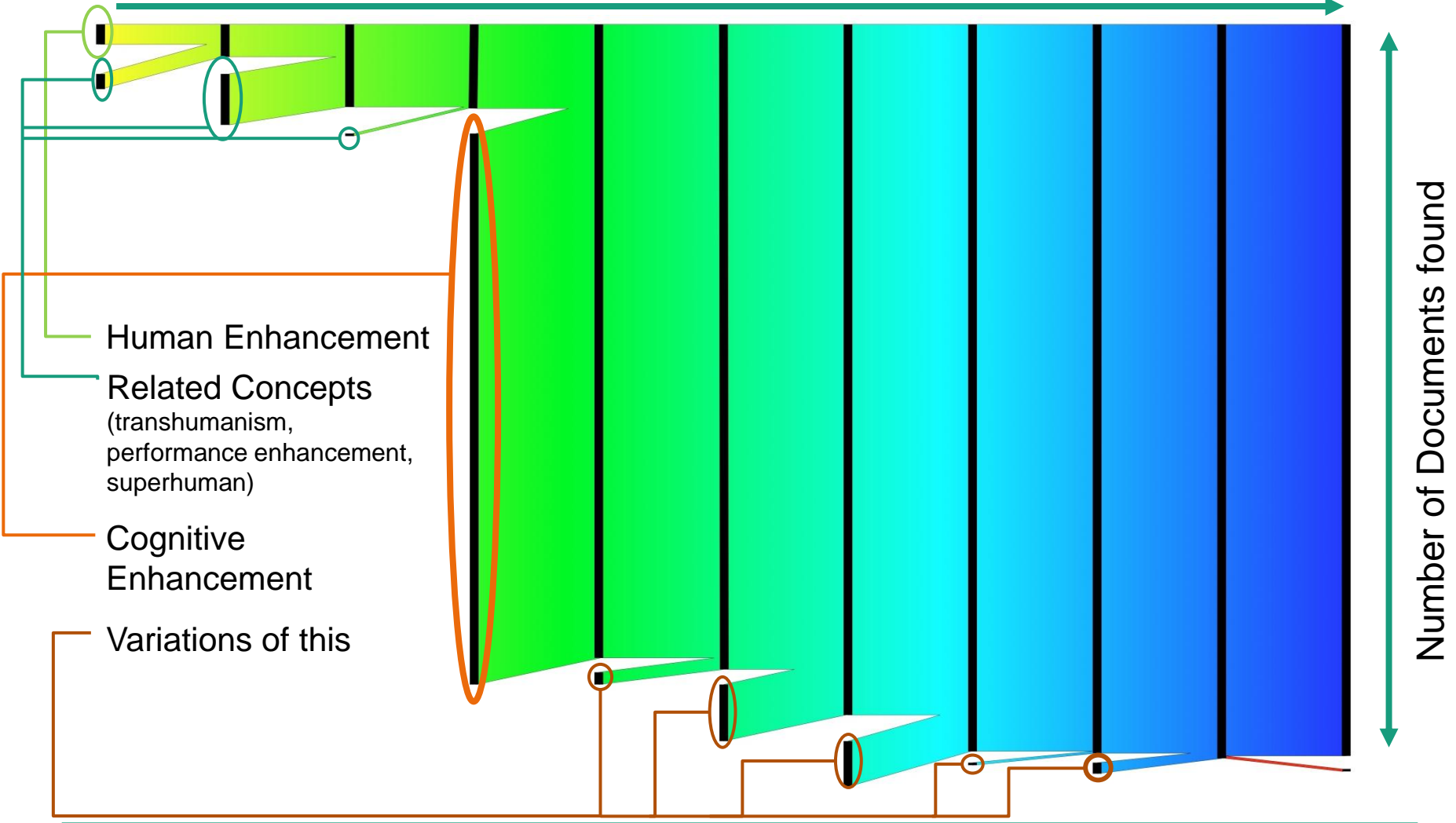
analysis



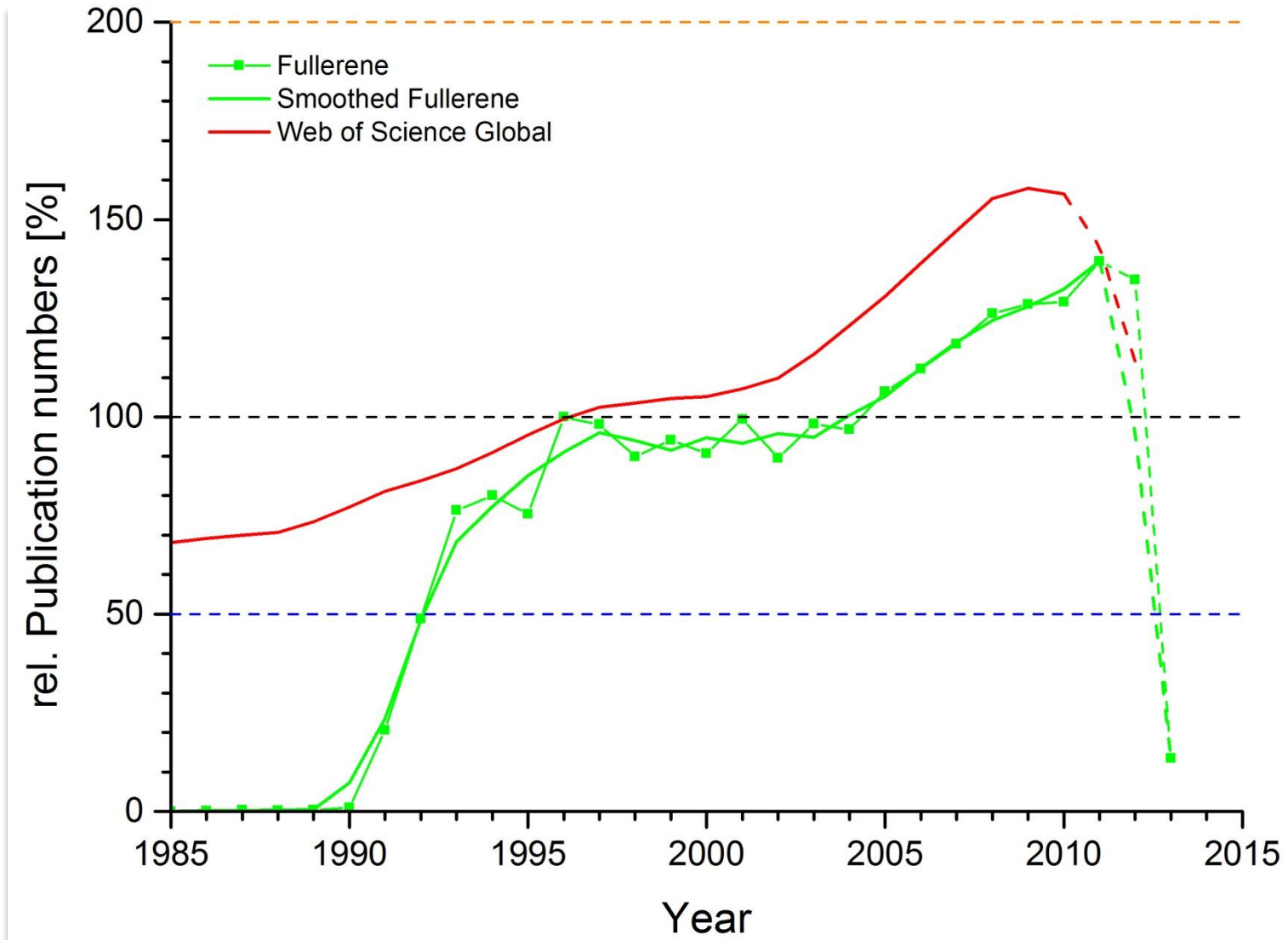
Experts Knowledge

The Art of a Search Query

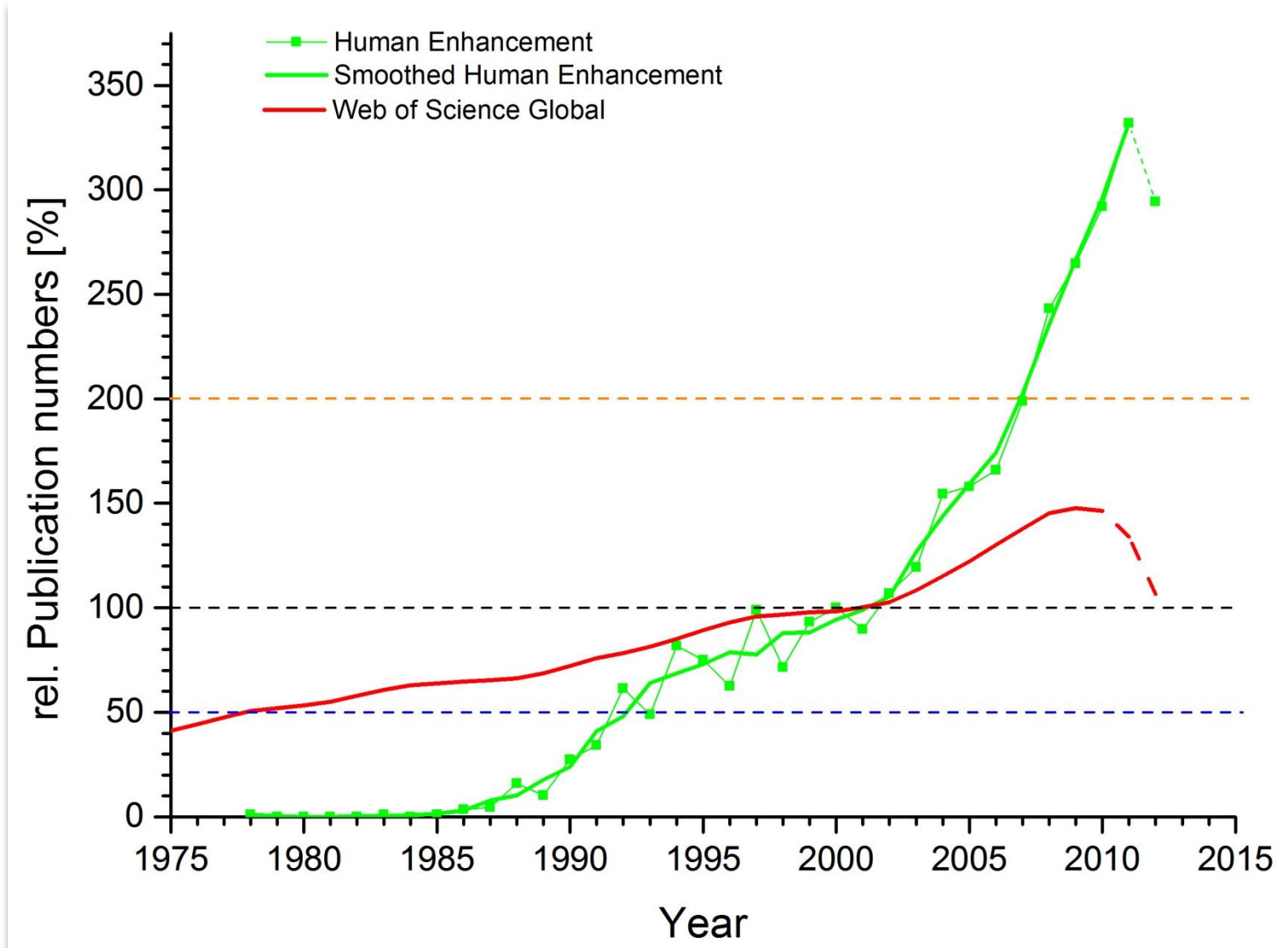
Index of Search Terms



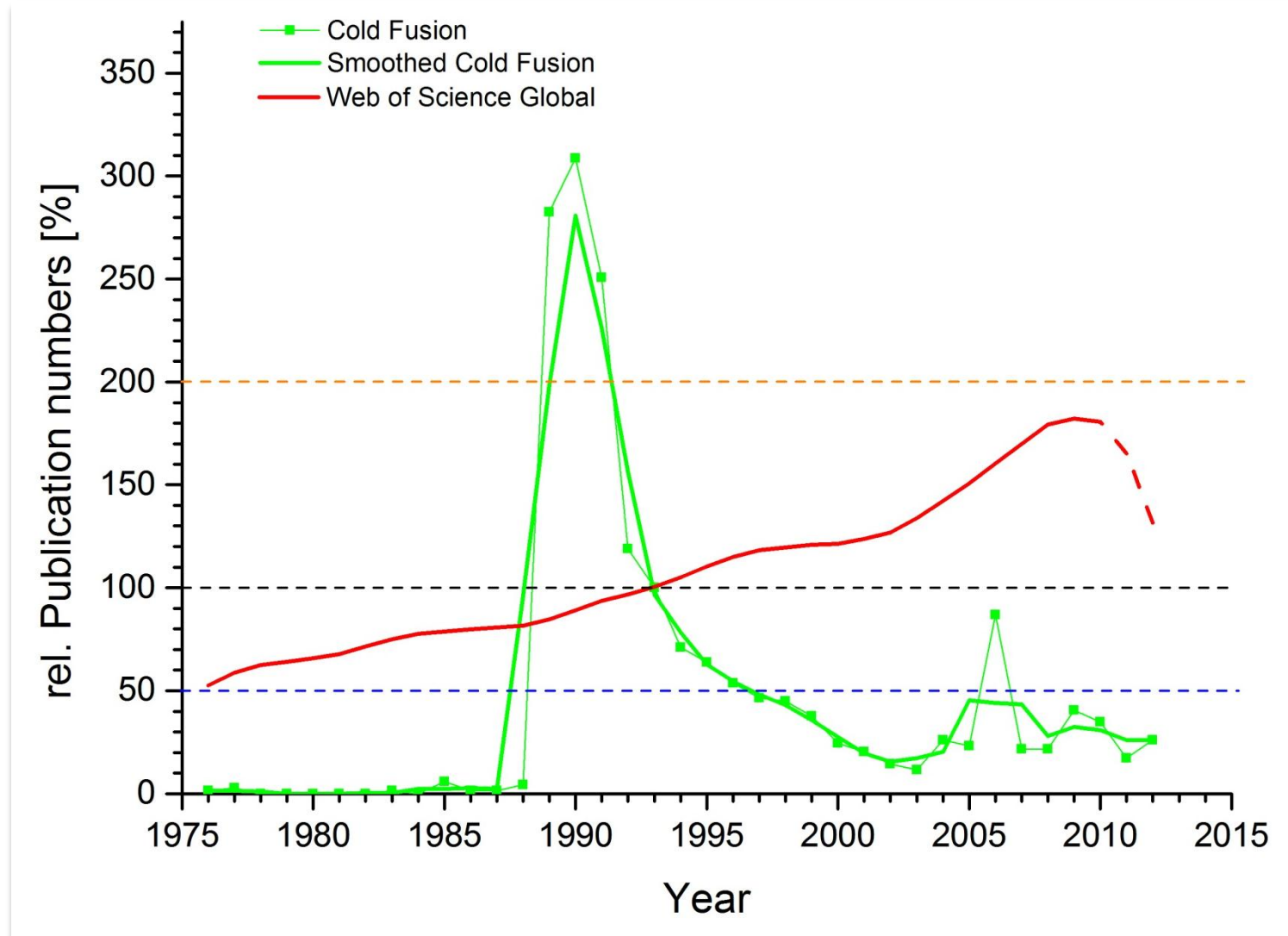
Results: Publicationdynamics for Fullerene



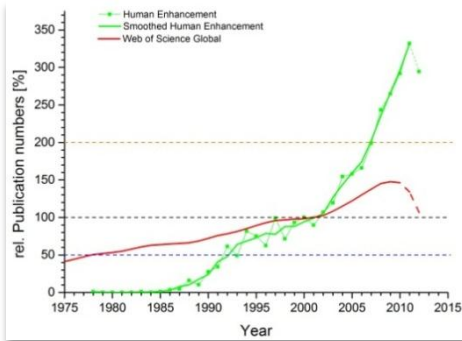
Results: Publicationdynamics for Human Enhancement



Results: Publicationdynamics for Cold Fusion



Results: Publicationdynamics - Synopsis

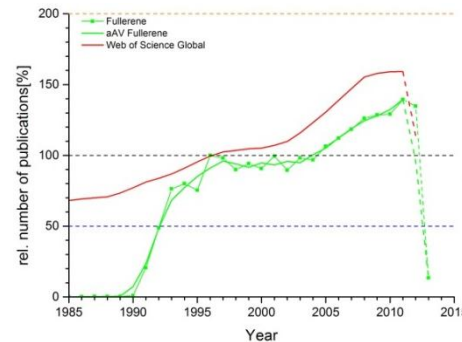


Human
Enhancement

Hot

Human Enhancement

- Moderate two-phase growth until 2000
- Strong growth since 2000

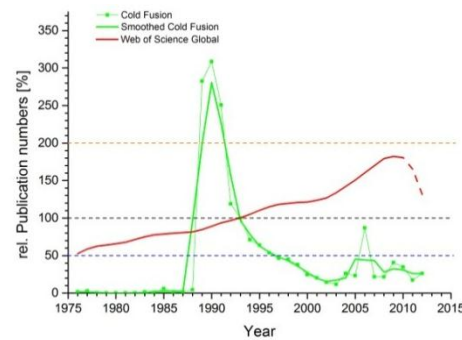


Fullerene

Moderate

Fullerene

- Strong increase after discovery
- Parallel to general trend

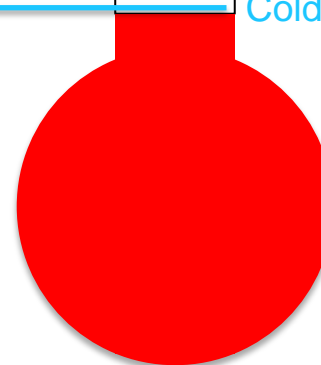


Cold Fusion

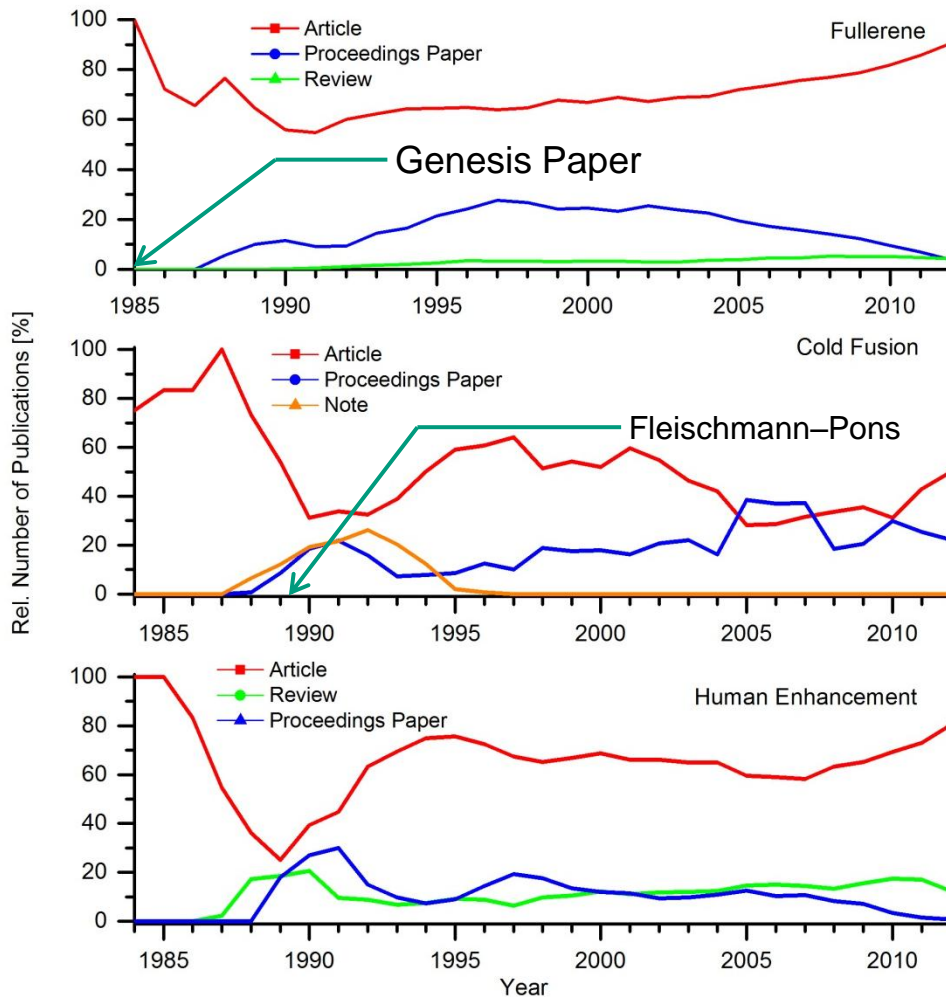
Cold

Cold Fusion

- Peak around 1990
- After 1990 strong decline



Results: How Scientists communicate



Fullerene – as expected:

- Starting with articles
- Later conferences
- Reviews even later

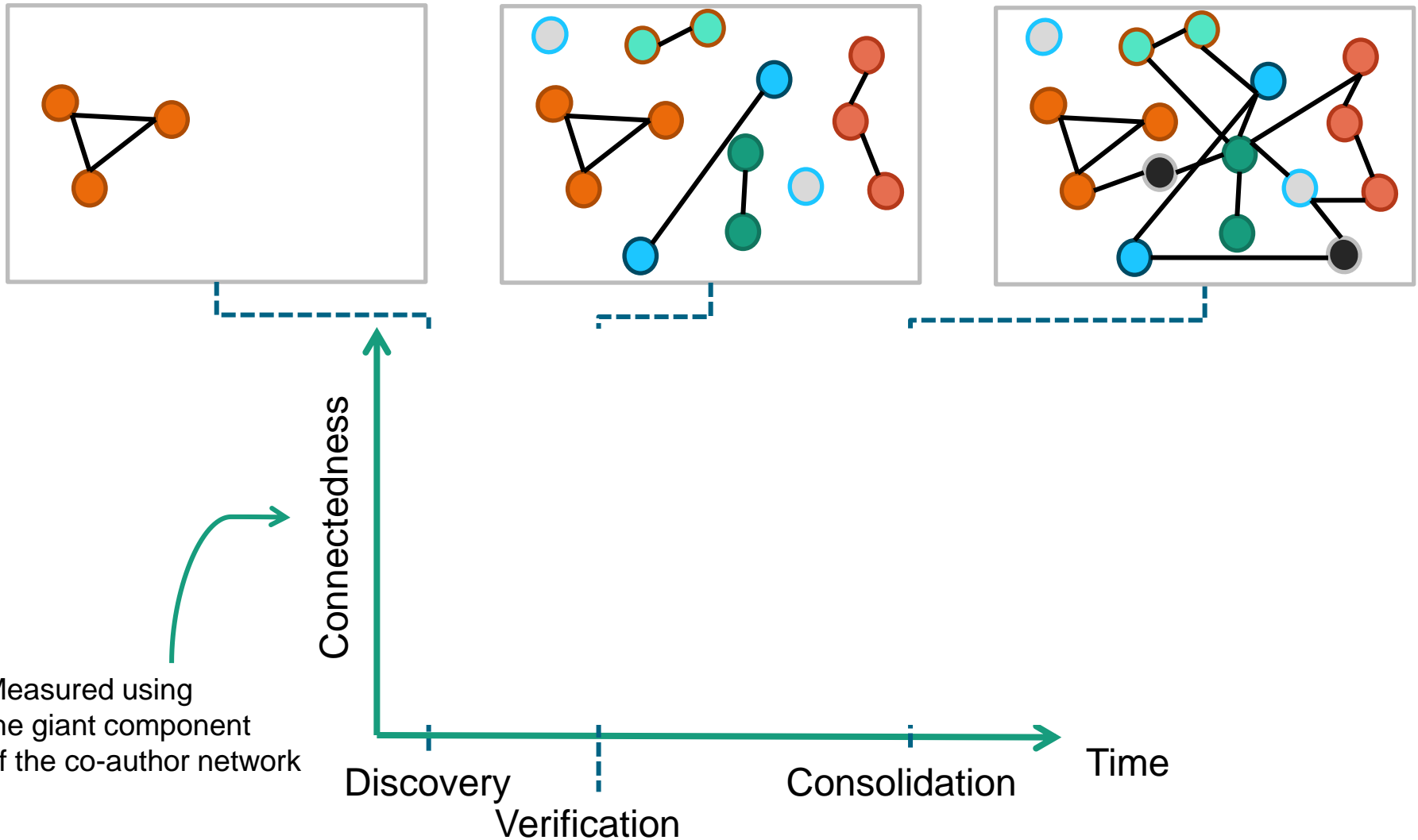
Cold Fusion – atypical:

- Many notes and proceedings
- fast communication

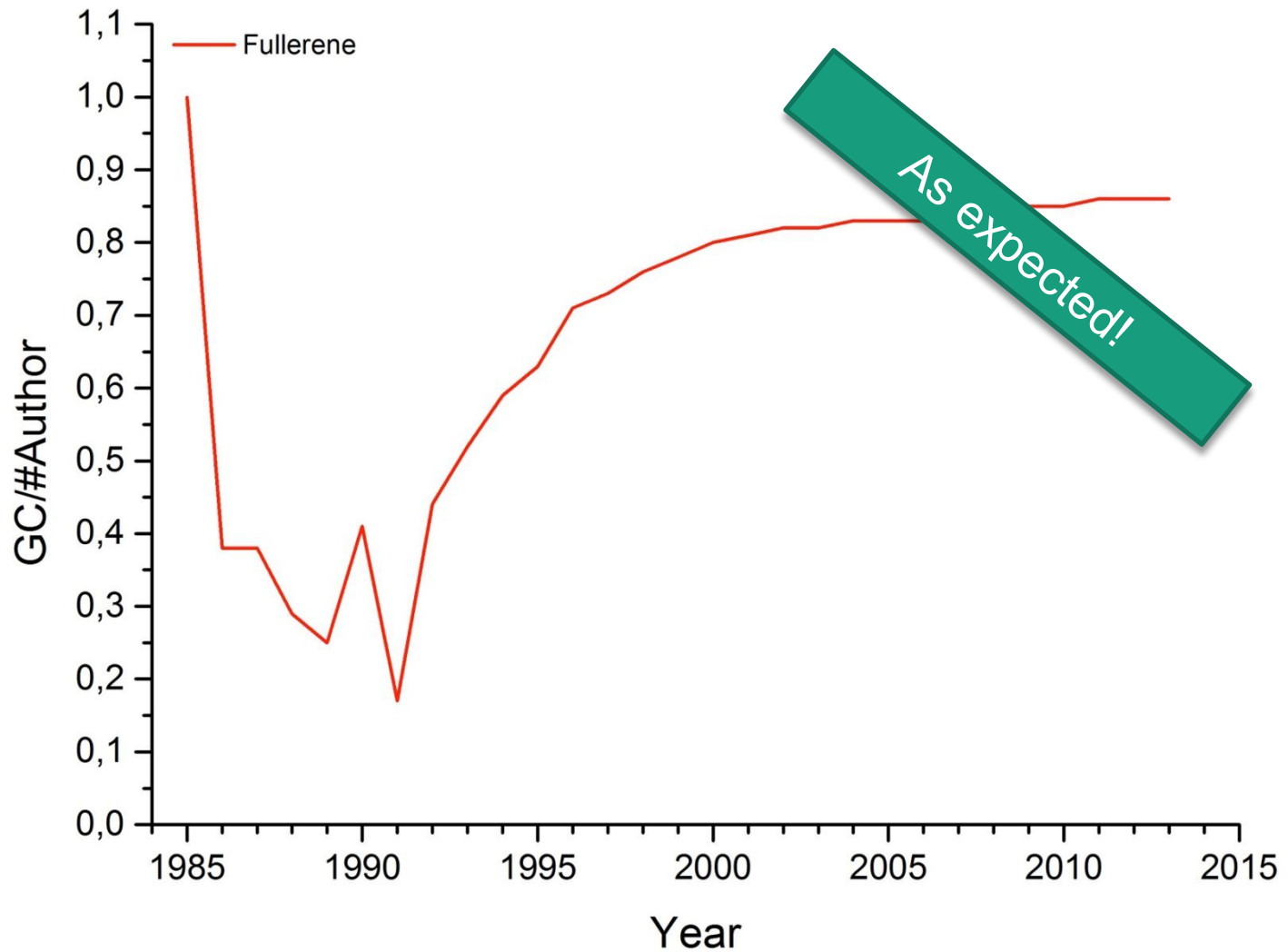
Human Enhancement – atypical

- Many reviews
- aggregating field?

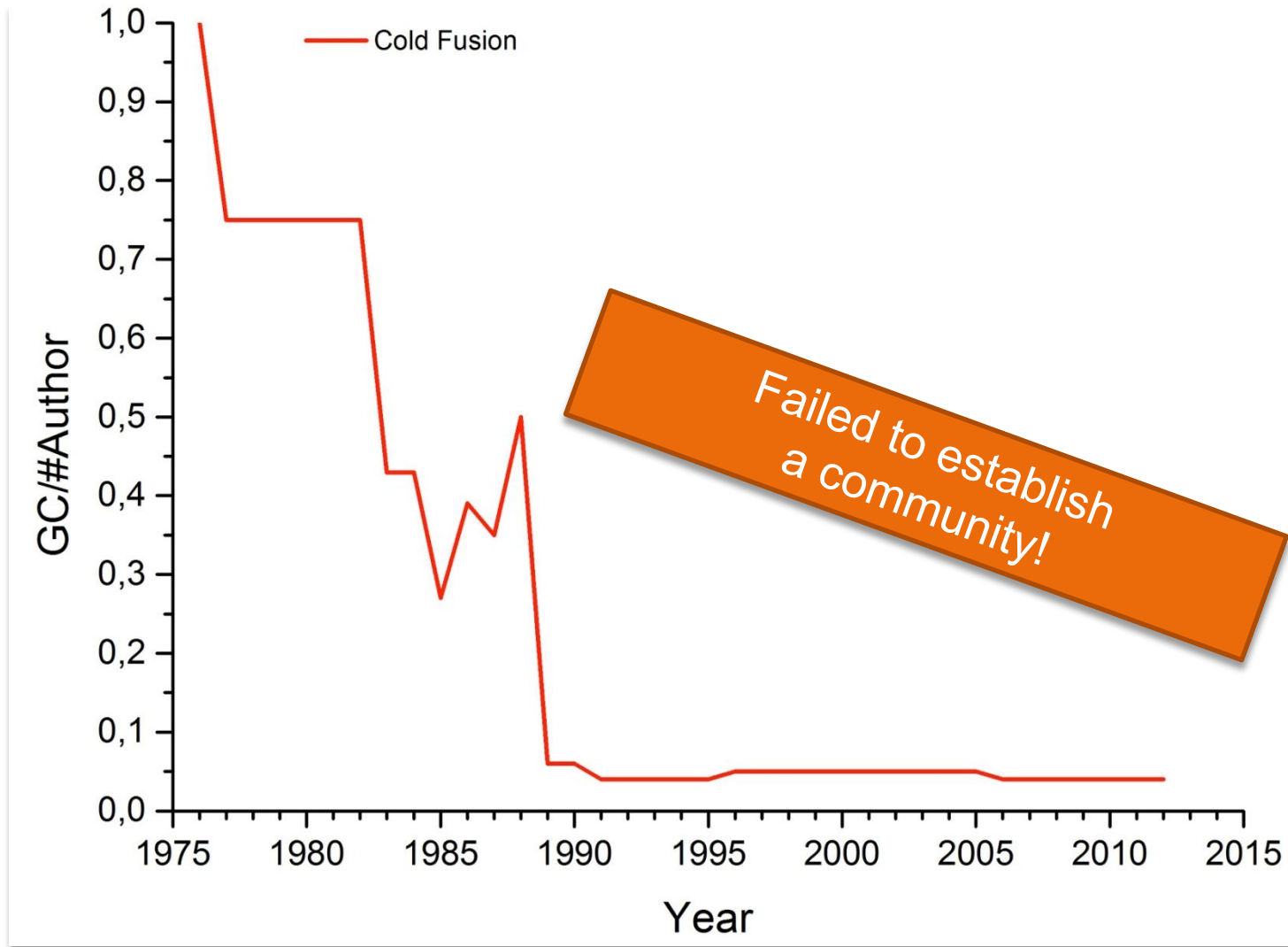
Formation of a Scientific Community



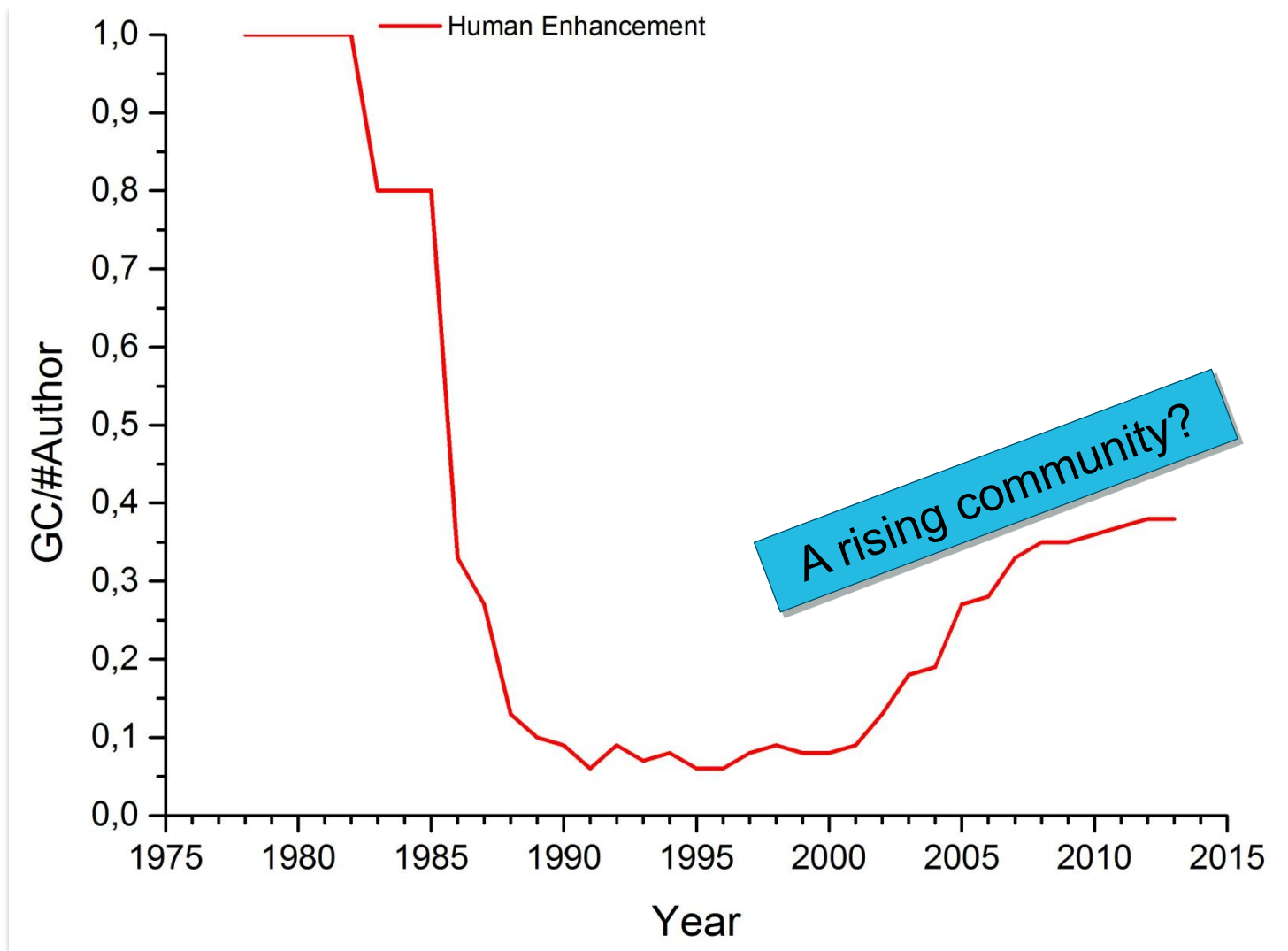
Results for Fullerene



Results for Cold Fusion



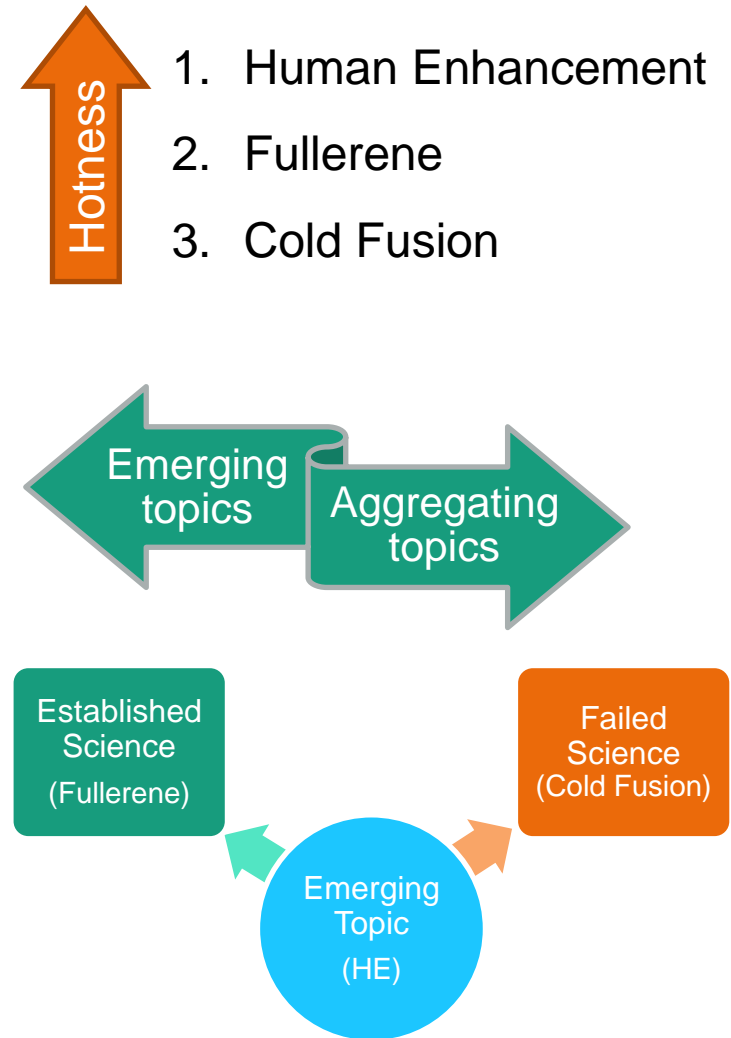
Results for Human Enhancement



Conclusion

Different types of emerging topics discernible

- Using publication dynamics
- Using document types
- Using connectedness of co-author network



Contact



Fraunhofer Institute for
Technological Trend Analysis,
Euskirchen, Germany

Marcus John
marcus.john@int.fraunhofer.de



Frank Fritsche
frank.frische@int.fraunhofer.de