

SUSTAINABILITY SCIENCE DAY 2017

Green, Circular, Bio economy: a comparative analysis of sustainability concepts

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Research problem?

Circular economy (CE), Green economy (GE) and Bioeconomy (BE):

Despite their different assumptions and operationalization strategies, a comparative analysis of such concepts is missing.

Importance to sustainability?

Multiple actors adopt or dismiss these concepts as the gain or lose political momentum, or as they can legitimise or hamper their interests and activities.

A critical comparison would provide relevant basis to further inform research, industry and policy implementation.

Which method and why?

Review of almost 2000 scientific articles from CE, GE and BE literature, using text analysis*.

The software identifies keywords and topic clusters based on words frequencies.

This method allows to perform content analysis on a large amount of text wording.

*latent Dirichlet allocation (LDA)

Main findings?

Great internal diversity of GE and BE.

GE is the most inclusive concept.

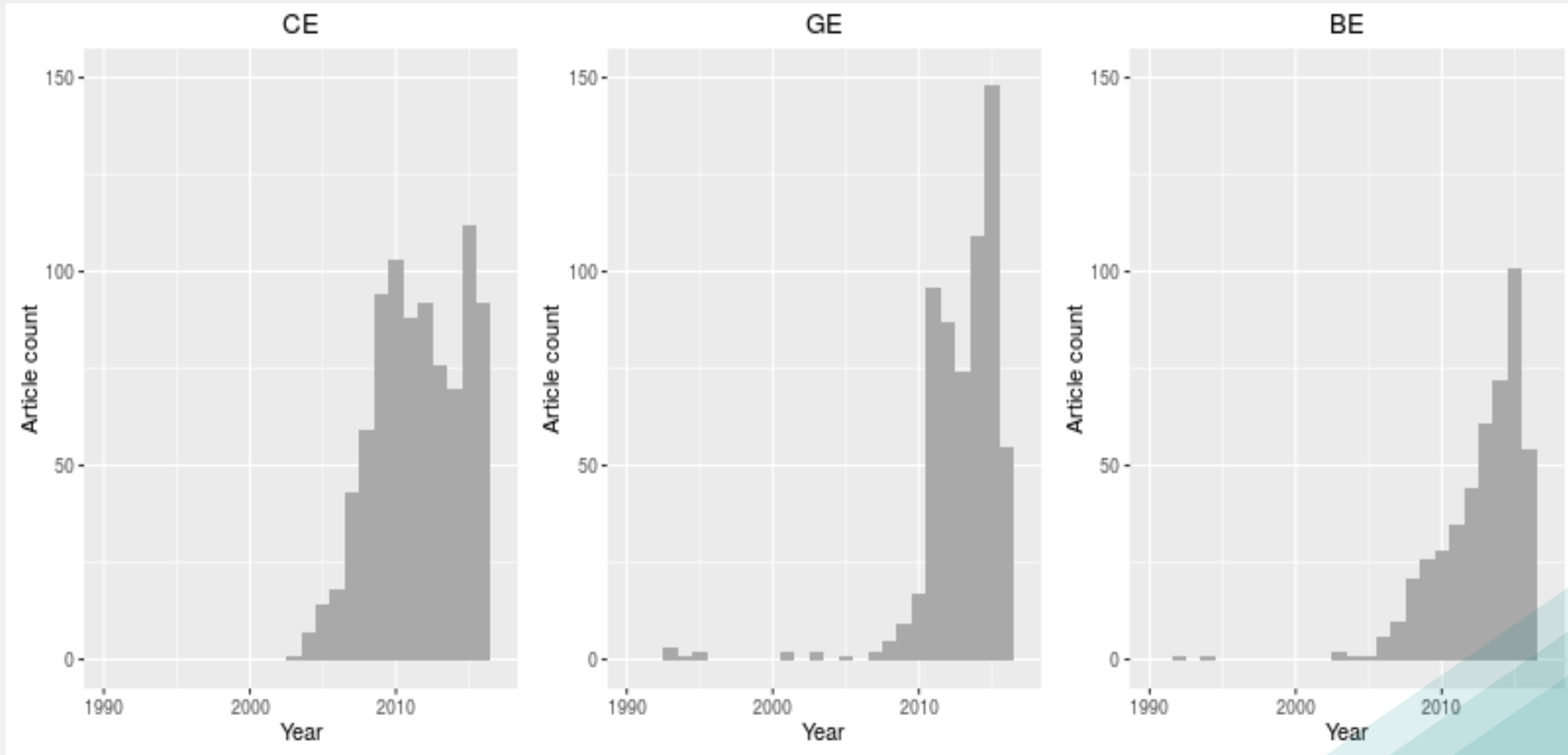
The concepts do not question economic growth.

Synergies should be sought to complement the individual concepts.

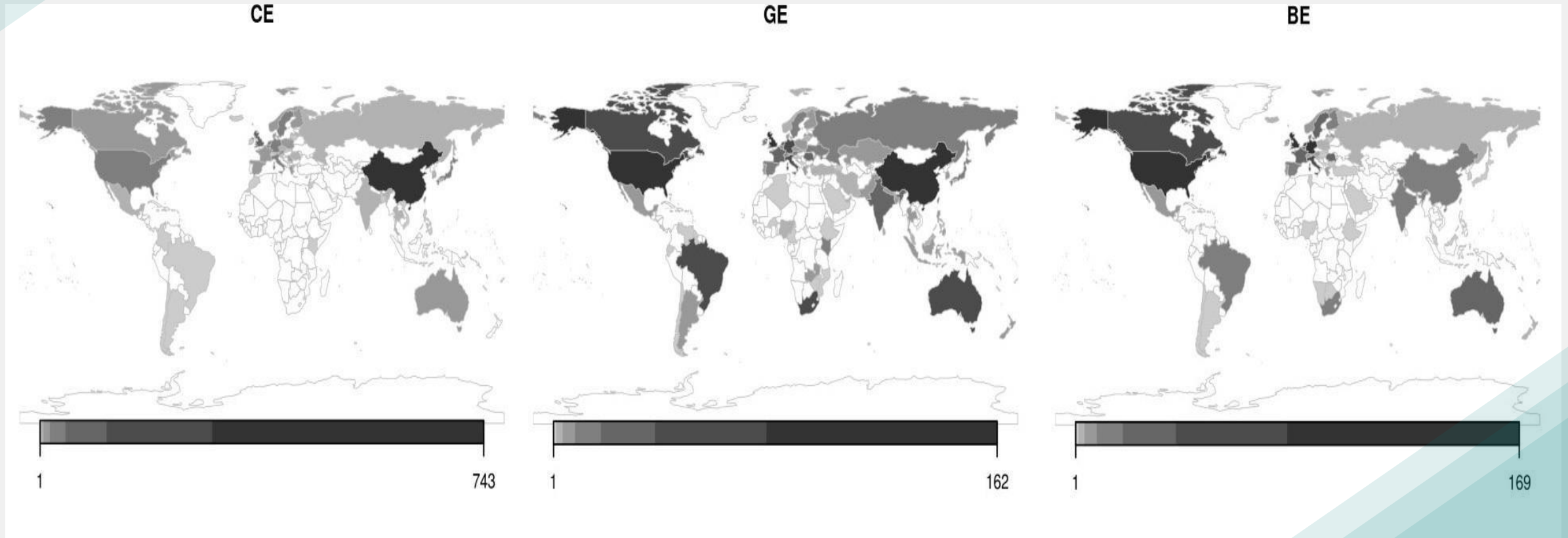
Text analysis offers new methods to sustainability research.

[Explore interactive results!](#)

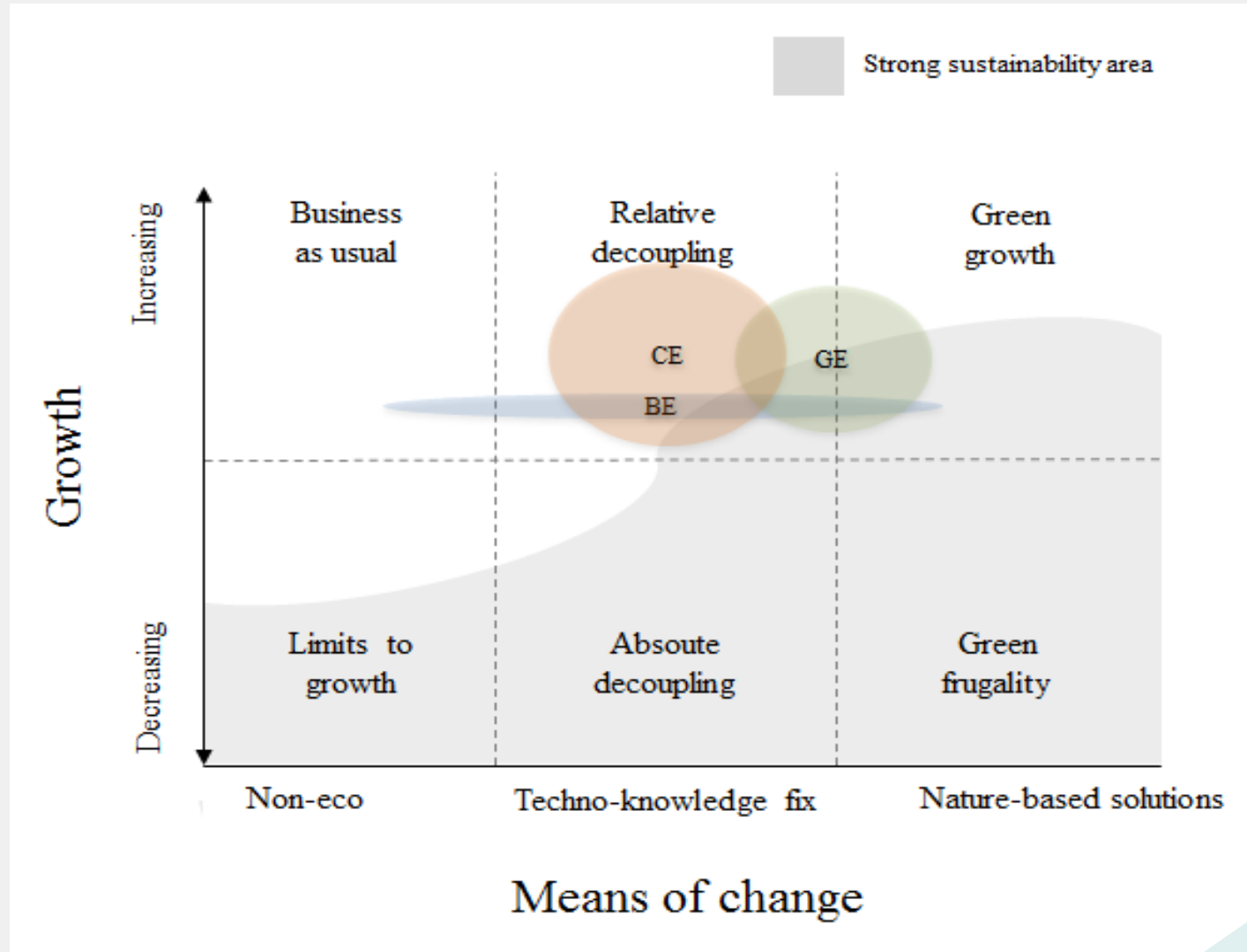
Literature distribution in time



Literature distribution in space



Concepts and sustainability



Concepts comparison

Overlaps	Divergences	Shared limits	Synergies
Energy, emissions and natural resources utilization; Eco-efficiency.	CE and BE resource-centred, while GE addresses all natural processes; CE focussed on urbanization and BE on rural development.	Fail to question the growth paradigm; Incomplete in addressing all aspects of sustainability dimensions.	Circular Bioeconomy; GE as an umbrella concept.