

Measuring the Interdisciplinarity of Technology based on Knowledge Flows in Patents: a Case Study in Synthetic Biology

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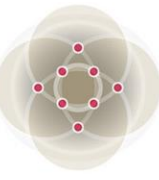
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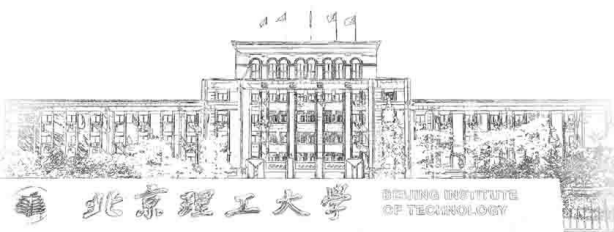


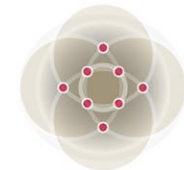
- With the rapid economic growth and the changing social needs, more and more complex problems need to be solved through **interdisciplinary collaborative research**.
- In the field of technology, **the diversity of disciplines**, as an important means to promote innovation, can provide the source of power for **technological integration** and technological evolution, but also provide important strategies for the sustainable development of society.
- Despite much research on the interdisciplinarity of publications across subject categories, few studies analyze **the interdisciplinarity of technology** from the perspective of **knowledge flows**.

Technological boundaries have become blurred, and new types of inventions are appearing less within a single field and more between technological fields.

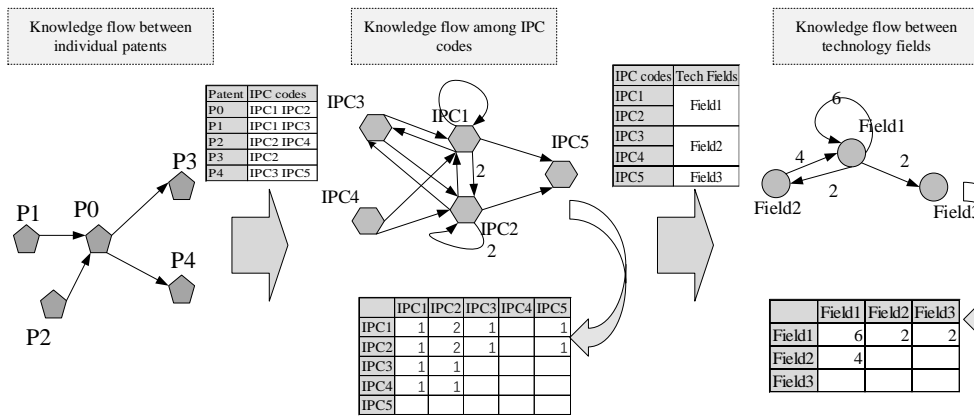
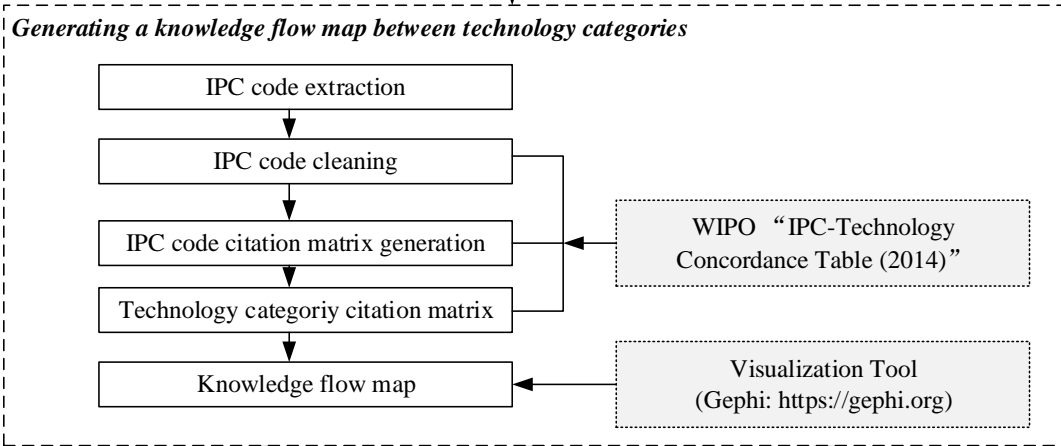
Association ? Measuring the Interdisciplinarity of Technology based on Knowledge Flows in Patents.

Lan et al. (2013) proposed that a citation carries an implied knowledge flow between the citing article and the cited article. Knowledge flow has two ends: a knowledge provider and a knowledge consumer (Zhang et al., 2013)

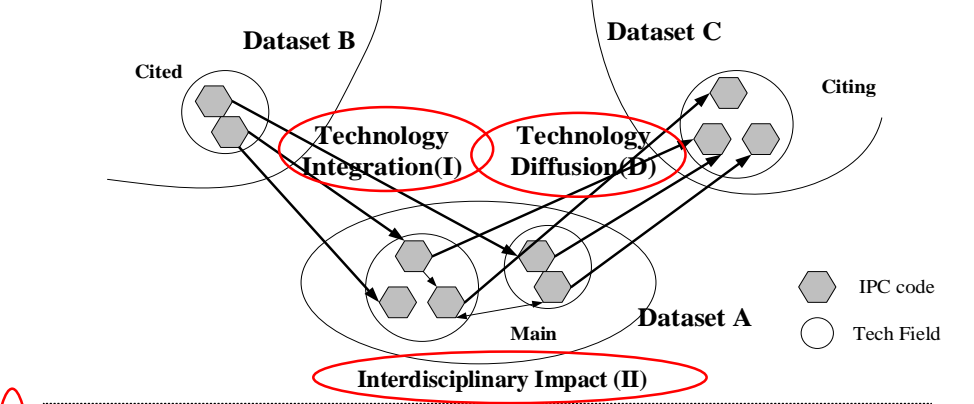
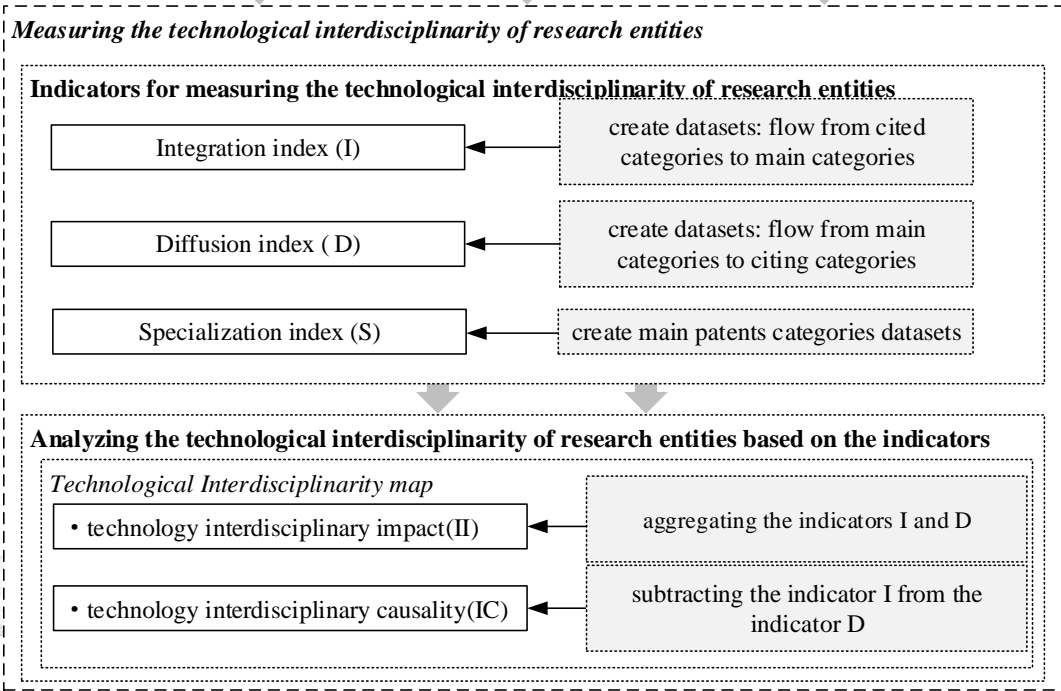




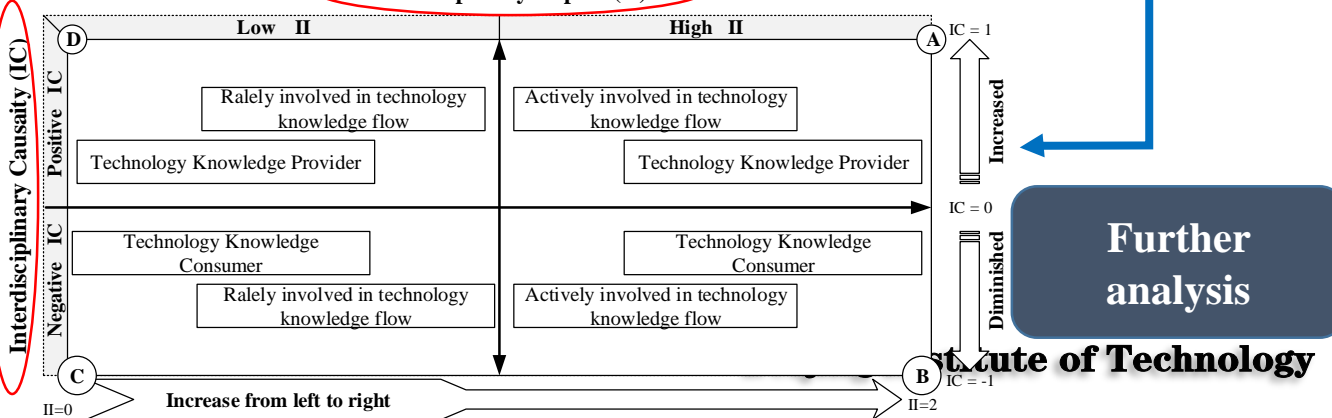
Data
target patents (main patents) and citation information (cited patents & citing patents)



Technology knowledge flow matrix

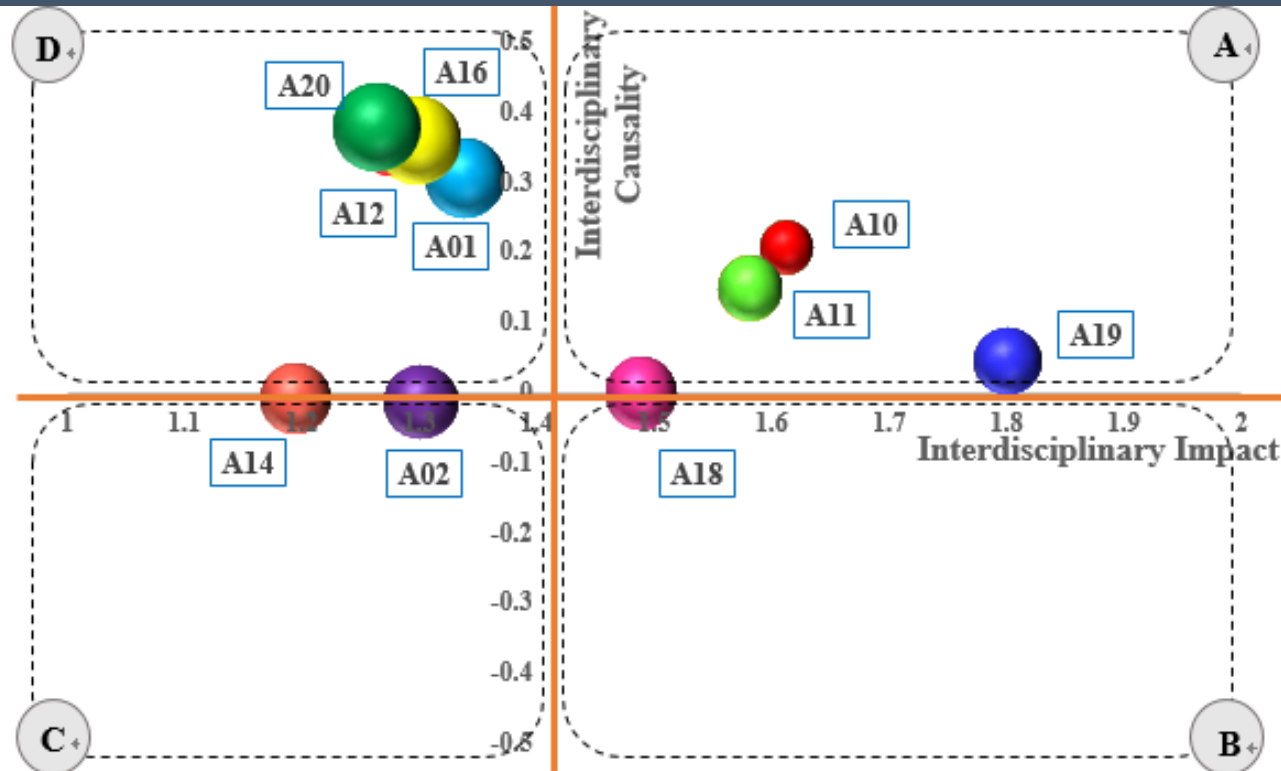
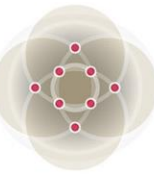


Technology interdisciplinary indexes



Further analysis

State of Technology



- synthetic biology is an actively interdisciplinary technology, both with its origins in a number of technology categories, and because it also provides feedback to those categories.
- The research entities in this technical field play different roles in the process of technology knowledge flows.

Limitations:

- Don't distinguish citation between applicants and examiners
- Citing information will change over time, the diffusion indexes also will change accordingly

Contributions:

Results suggest that this method is valid and could become the basis of a system for assessing technological interdisciplinarity of research entity to further guide the creation of new inventions by converging prominent technologies beyond technology field boundaries.

Thanks you for your attention!
Question & Comments

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