

Collecting plausible scenarios by media analysis: focusing on artificial organ cases

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Contents

1. Backgrounds

2. Methods

3. Results

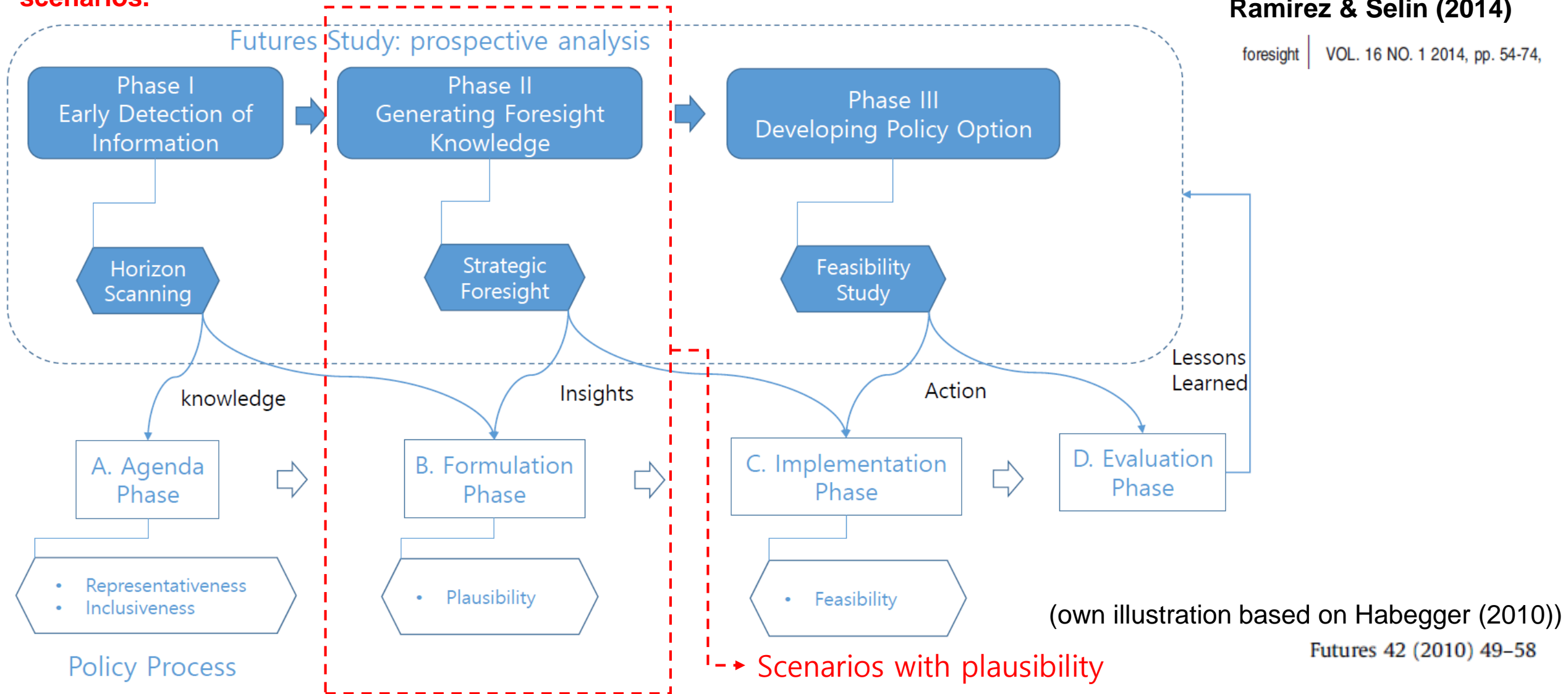
4. Conclusions

BACKGROUNNDS

Scenarios with plausibility, that worked to approach probable scenarios in a qualitative fashion, might limit and enumerate the likelihood of a discrete set of scenarios, while employing rich ethnographic study to shed light on those probable scenarios.

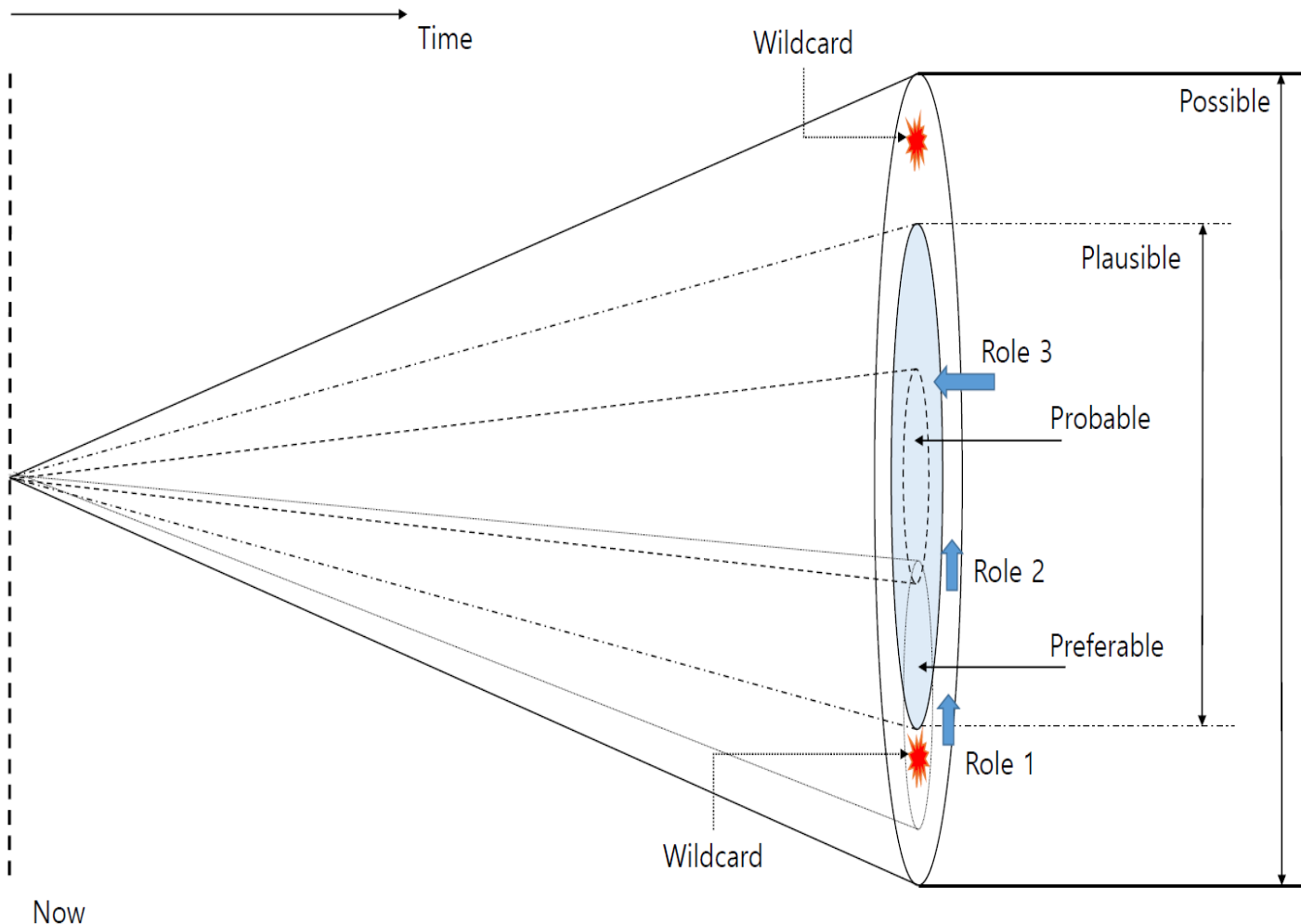
Ramirez & Selin (2014)

foresight | VOL. 16 NO. 1 2014, pp. 54-74,



BACKGROUNDS

Roles of plausibility/scenario planning



Role 1) Plausibility strengthens the unanticipated rapid change to be reflected in the policy realistically.

Role 2) Plausibility strengthens public support for policy by reducing the gap between the public's preferred future and the probable future of policymakers.

Role 3) Plausibility alleviates their burden by defining the scope and limits of the accountability of policymakers.

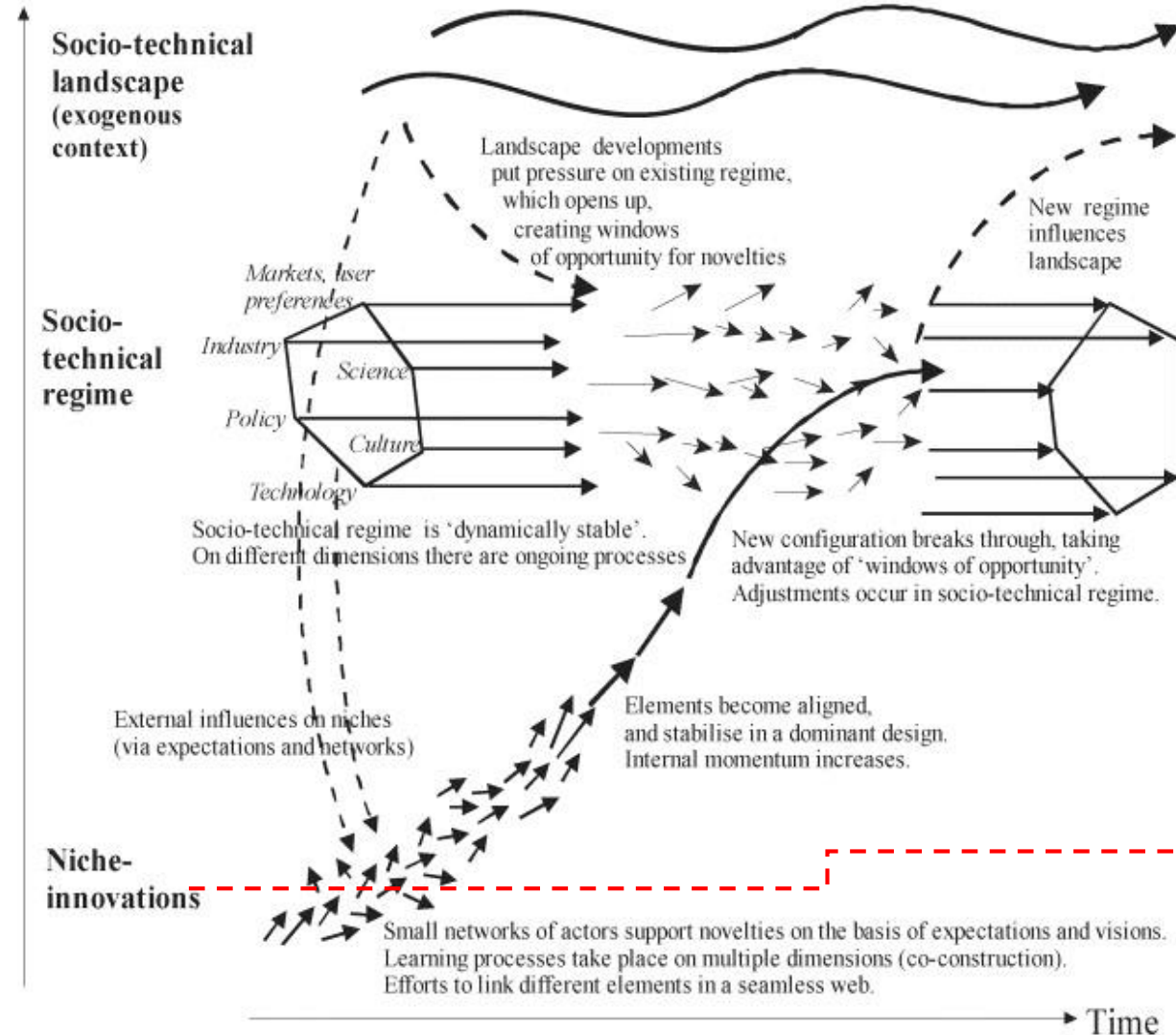
own illustration based on Hancock and Bezold (1994).

BACKGROUNDS

Multilevel Perspectives

Types of environmental change (Geels & Schot, 2007)

Increasing structuration of activities in local practices



Regular



Hyperturbulence

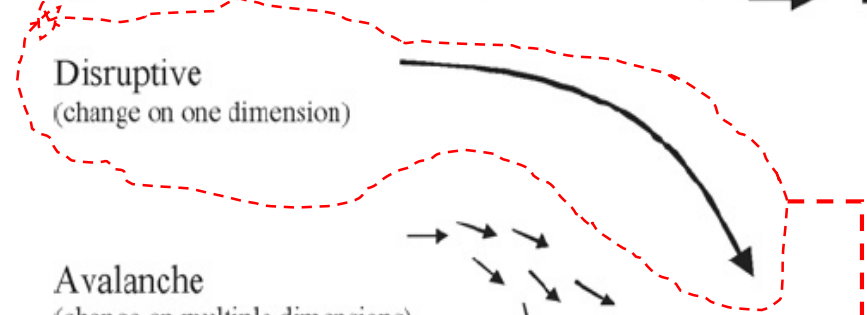


Specific shock



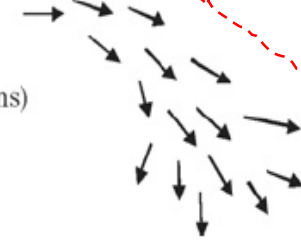
Disruptive

(change on one dimension)



Avalanche

(change on multiple dimensions)

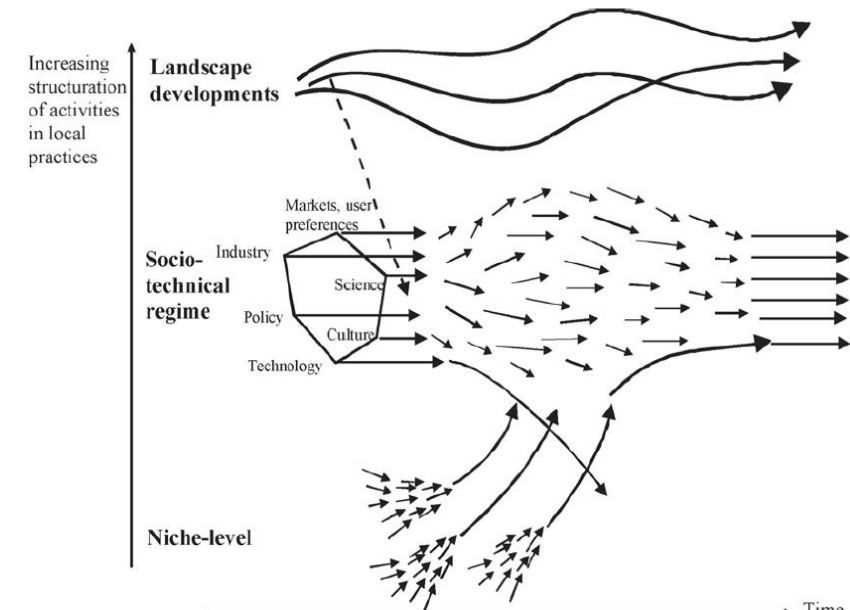
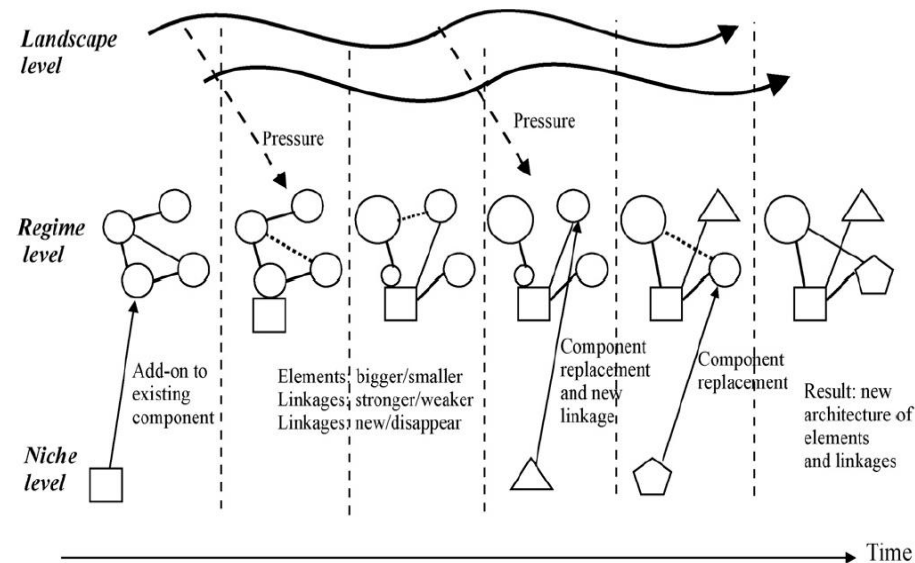
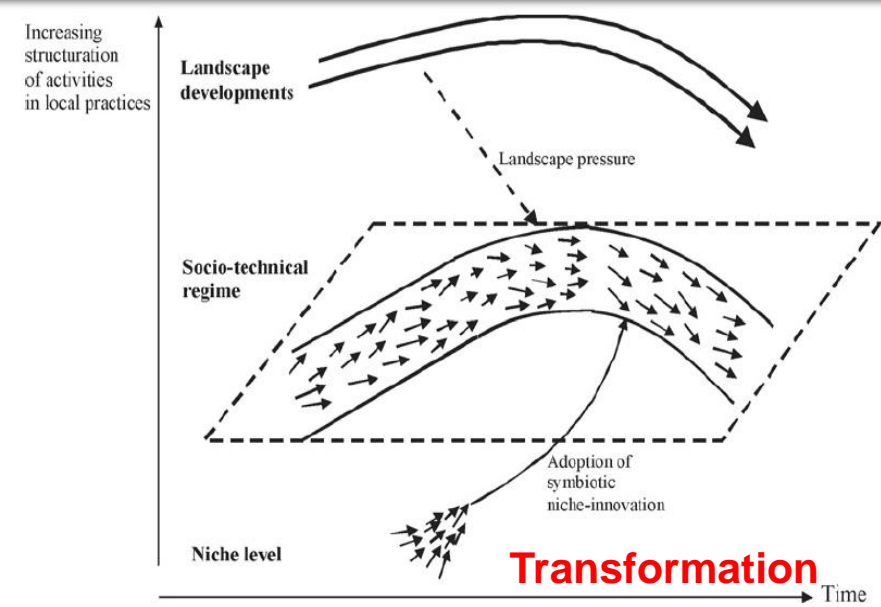
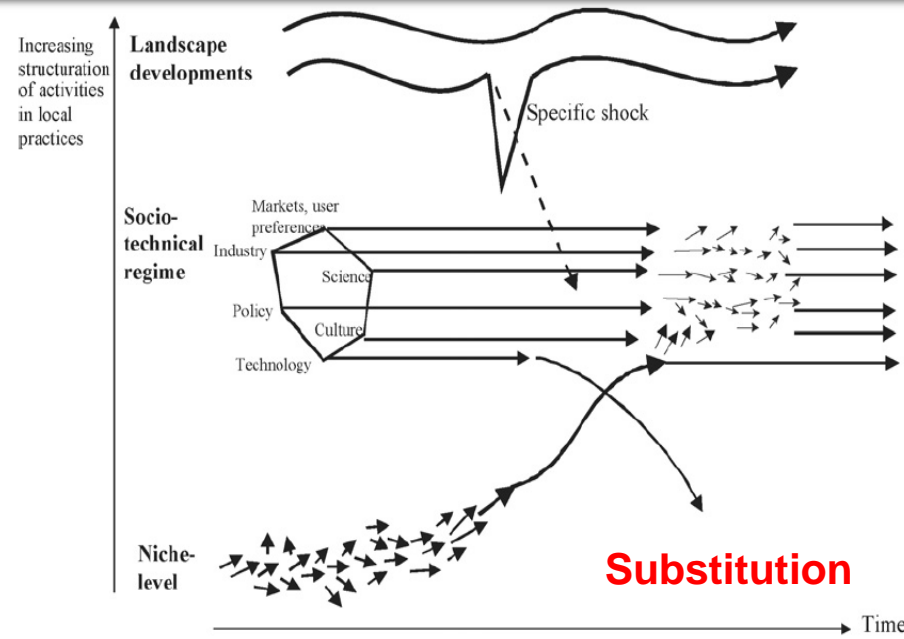


Global Aging & Artificial Organ

BACKGROUNDS

Pathways: Typology

→ Generalizable scenarios ?



METHODS

Research Questions

- 1) **Can the four types of sociotechnical transitions advocated by Geel's apply to generalized scenarios related to the transformation of innovation systems in scenario planning?**
- 2) **Will media analysis be a good way to collect plausible scenarios related to the transformation of innovation systems caused by emerging technologies?**
- 3) **Is international comparative research using Big Data methodologies more efficient than traditional methods for collecting and organizing various plausible scenarios?**

Process

1. Total 8,247 NEWS ARTICLES FROM 16 OUTLETS FROM 8 COUNTRIES

USA, UK, Germany, France, Spain, China, Japan, S. Korea

New York Times, Washington Post, BBC, Times, Le Figaro, Le Monde, Das Welt, Frankfurter Allgemeine Zeitung, El Pais, El Mundo, People's Daily, Global Times(環球時報: CN), 朝日新聞, 毎日新聞(Japan), 조선일보, 동아일보

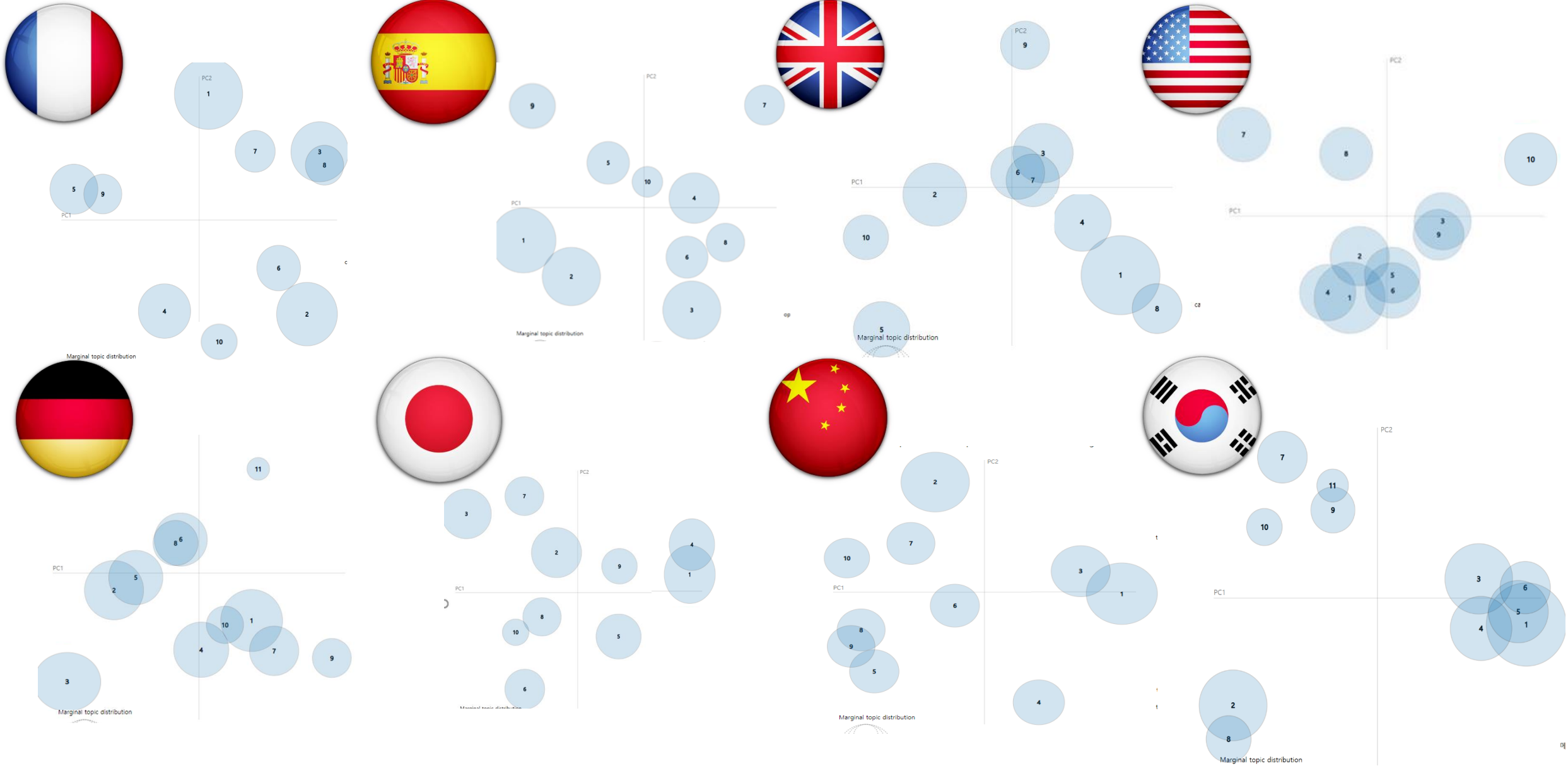
2. Combination of

**Google Search Engine + News Scrapping + Human Pre-Processing
+ Google Translate Service + Text Mining**

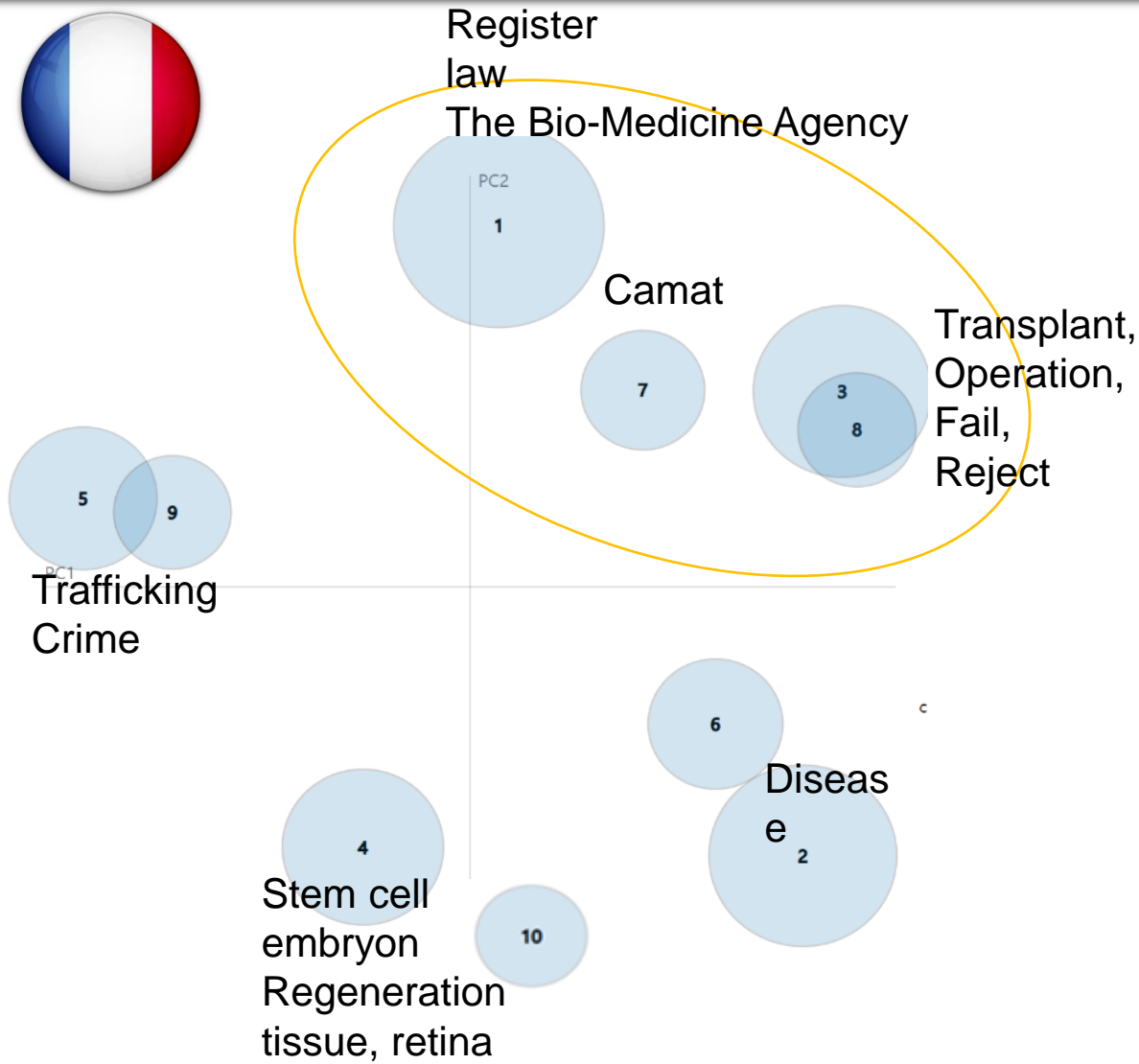
3. LDA Topic Modeling,

10-11 Topics (considered convergence in Program, Perplexity, Human Decision)

METHODS



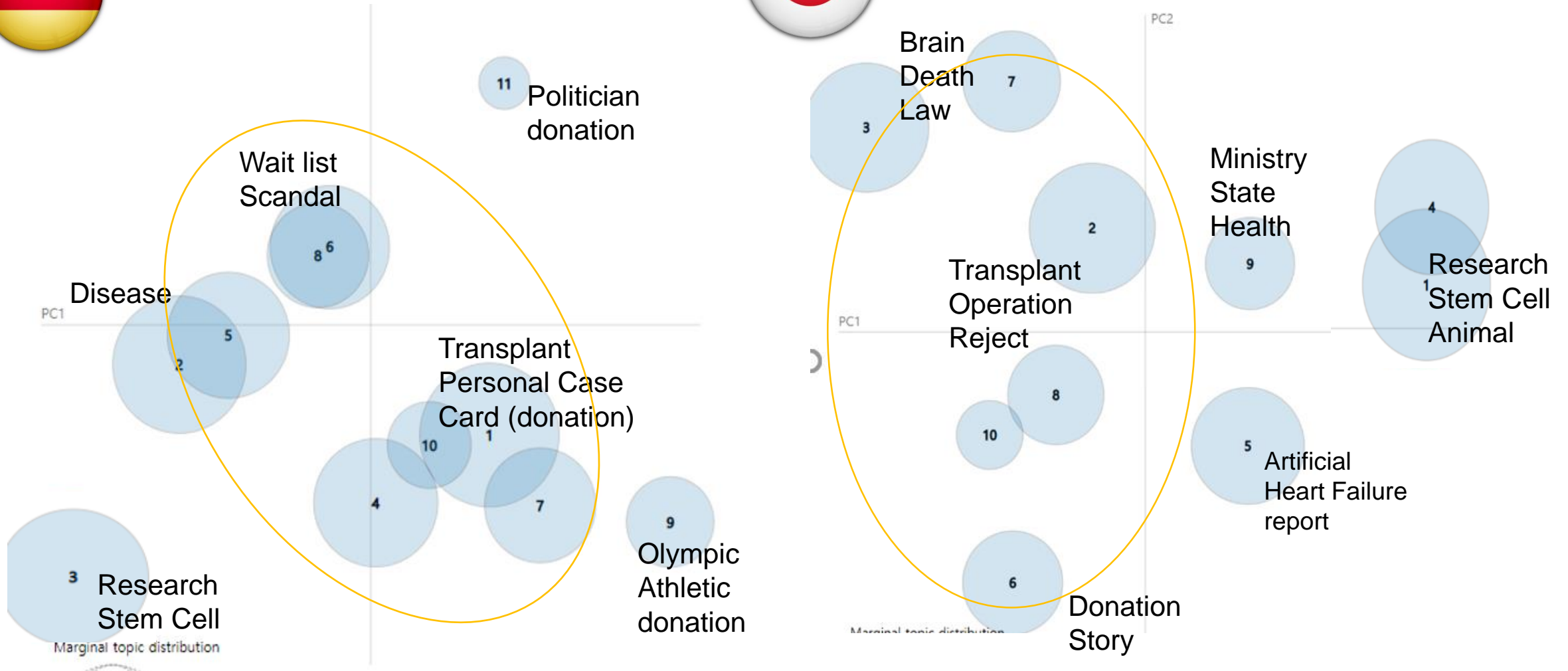
RESULTS



Toward Substitution but failed

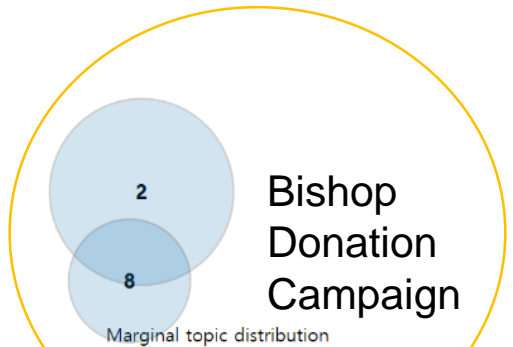
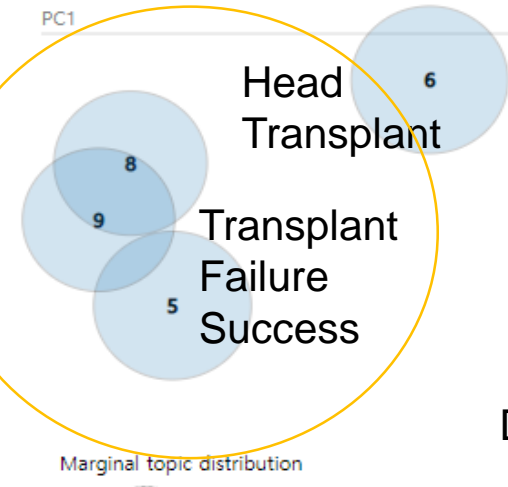
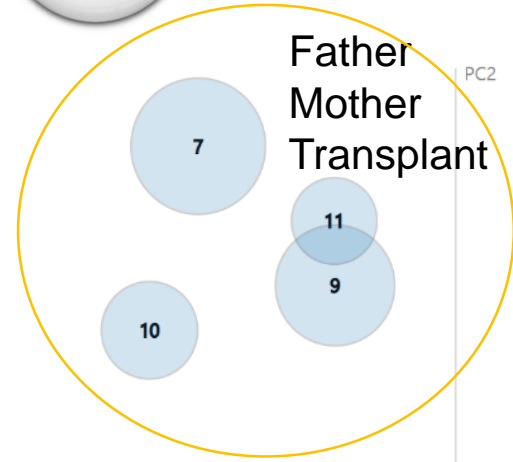
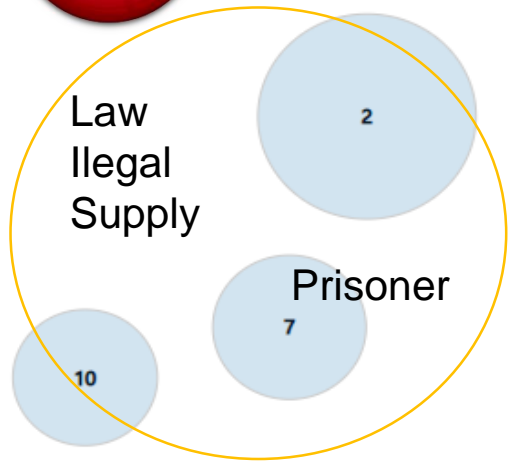
Transition pathway	Actors
(1) Substitution	New firms struggle against incumbent firms, leading to overthrow
	Different kinds of 'new entrants' (e.g. citizens, communities, social movement actors, incumbents from different sectors) replace incumbents
Technologies	Rules and institutions
Radical innovation(s) substituting existing technology	Limited institutional change, implying that niche-innovation needs to compete in existing selection environment ('fit-and-conform') ('Incremental adjustment', 'Layering')
	Creation of new rules and institutions to suit the niche-innovation ('stretch-and-transform') ('Disruption', 'Displacement')

RESULTS



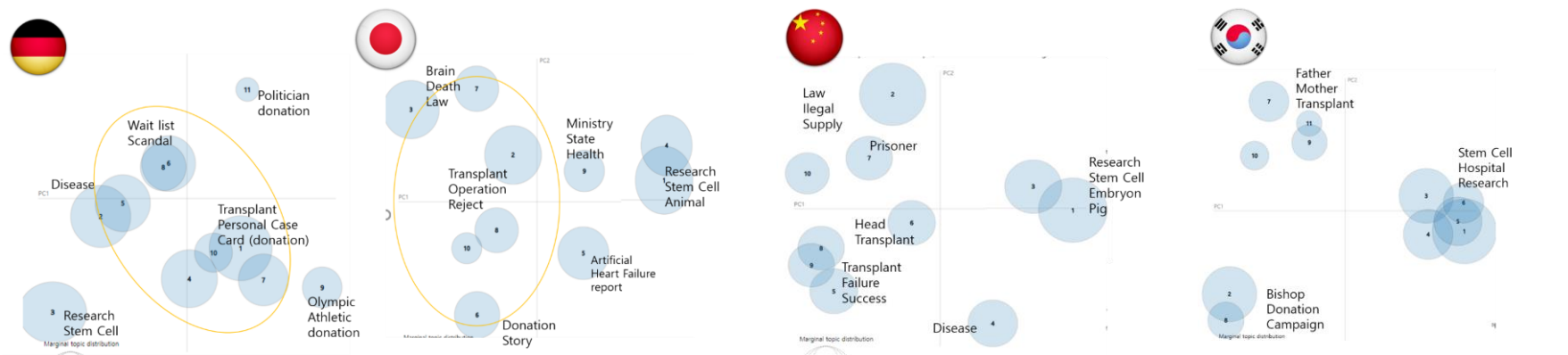
Countries where organ donation is not prevalent, mostly R&D is focused on STEM CELL

RESULTS



Similar Patten, but the difference in news reports are country-specific, particularly transplant-related cases

RESULTS



(2) Transformation

Incumbents reorient incrementally by adjusting search routines and procedures

Incumbents reorient substantially, to radically new technology or, even more deeply, to new beliefs, mission, and business model

Incremental improvement in existing technologies (leading to major performance enhancement over long time period).

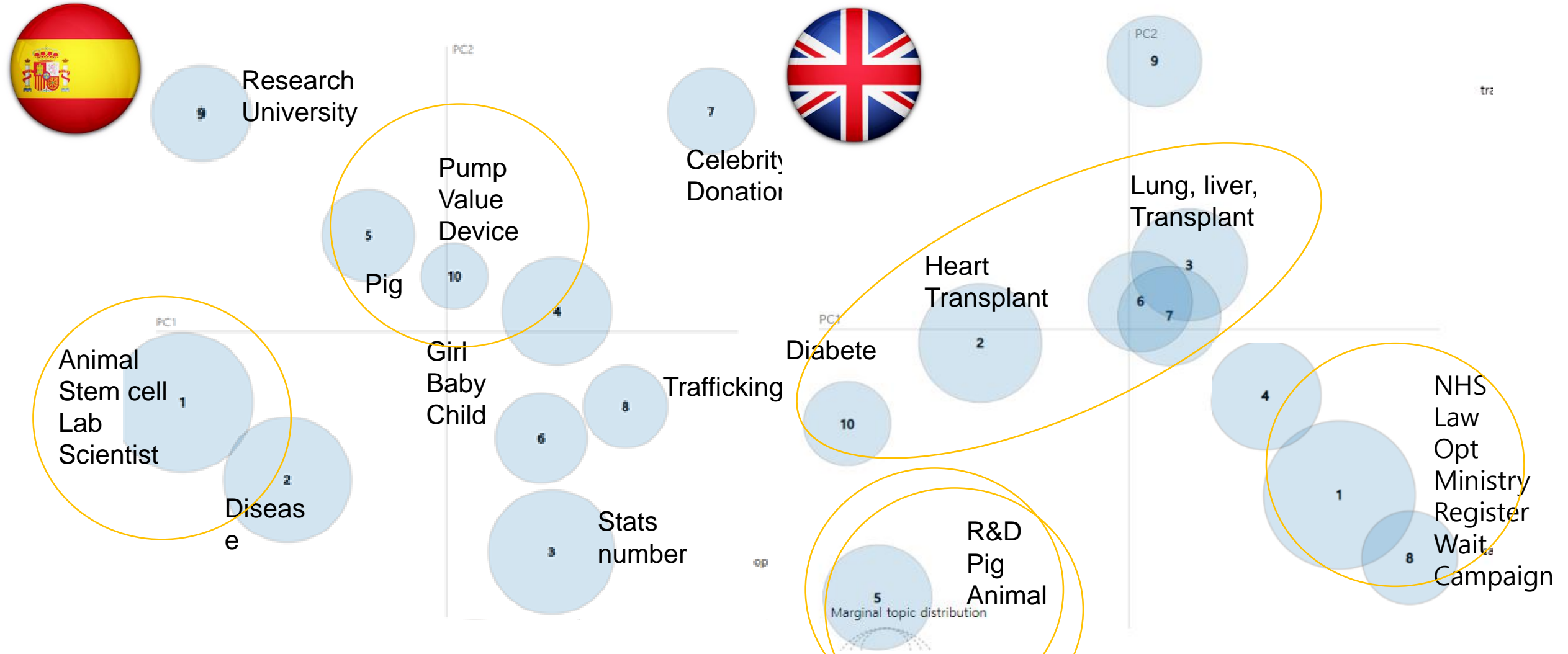
Incorporation of symbiotic niche-innovations and add-ons (competence-adding, creative accumulation)

Reorientation towards new technologies:
(a) partial reorientation (diversification) with incumbents developing both old and new technologies
(b) full reorientation, leading to technical substitution

Limited institutional change ('Layering')

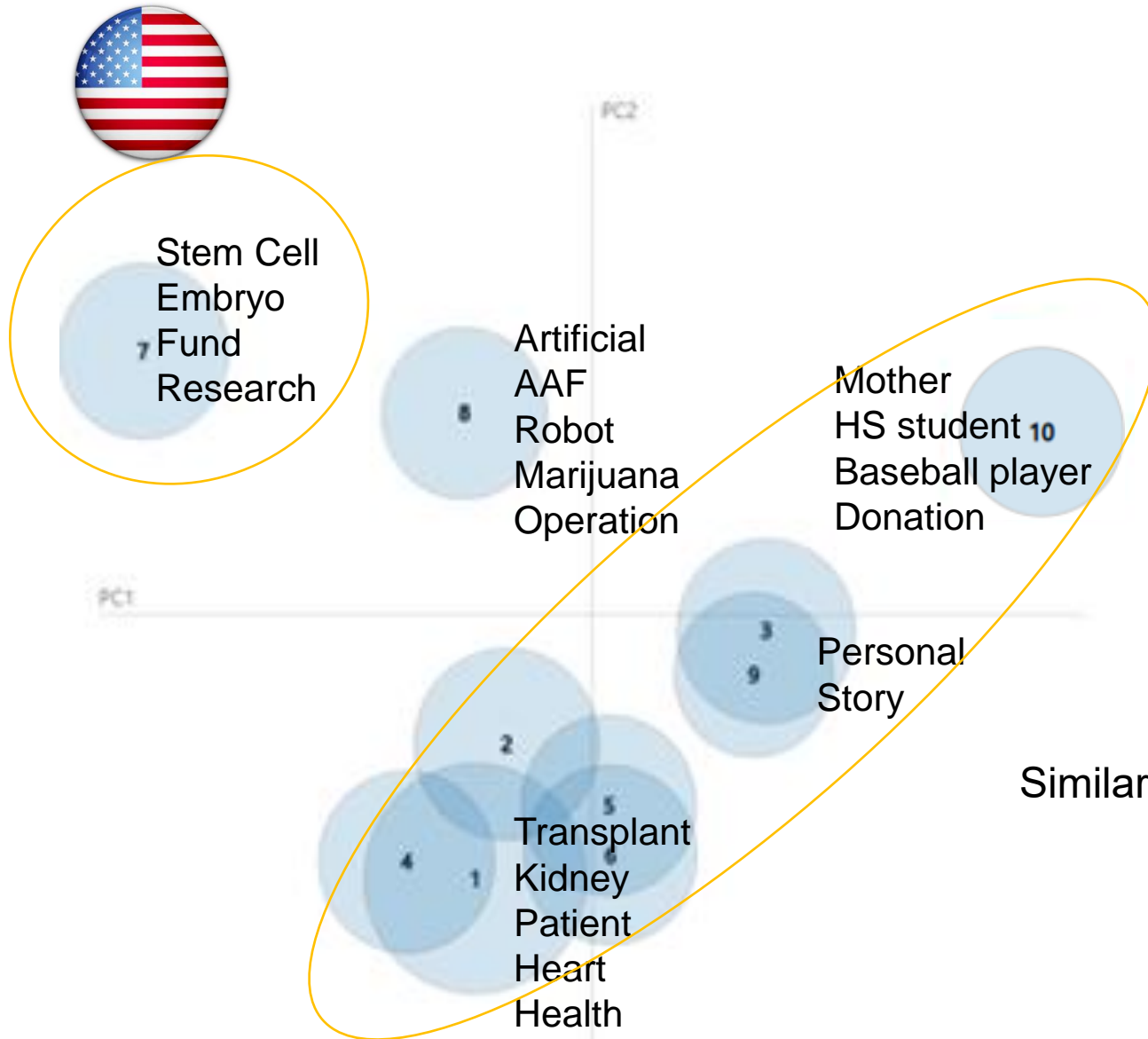
Substantial change in institutions ('Conversion', 'Displacement')

RESULTS



Spain, UK are similar in terms of their research focus, but assistant devices is mainly found in Spain
Supply difference and research tradition (also related ethnics, rights) influences
Spain is more inclined to re-configuration

RESULTS



Similar to UK, but no gov't institution emphasis,

RESULTS

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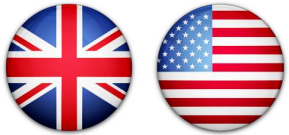
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(3) Reconfiguration

New alliances between incumbents and new entrants

From initial add-ons to new combinations between new and existing technologies; knock-on effects and innovation cascades that change system architecture.

From limited institutional change ('Layering') to more substantial change, including operational principles ('Drift', 'Conversion')



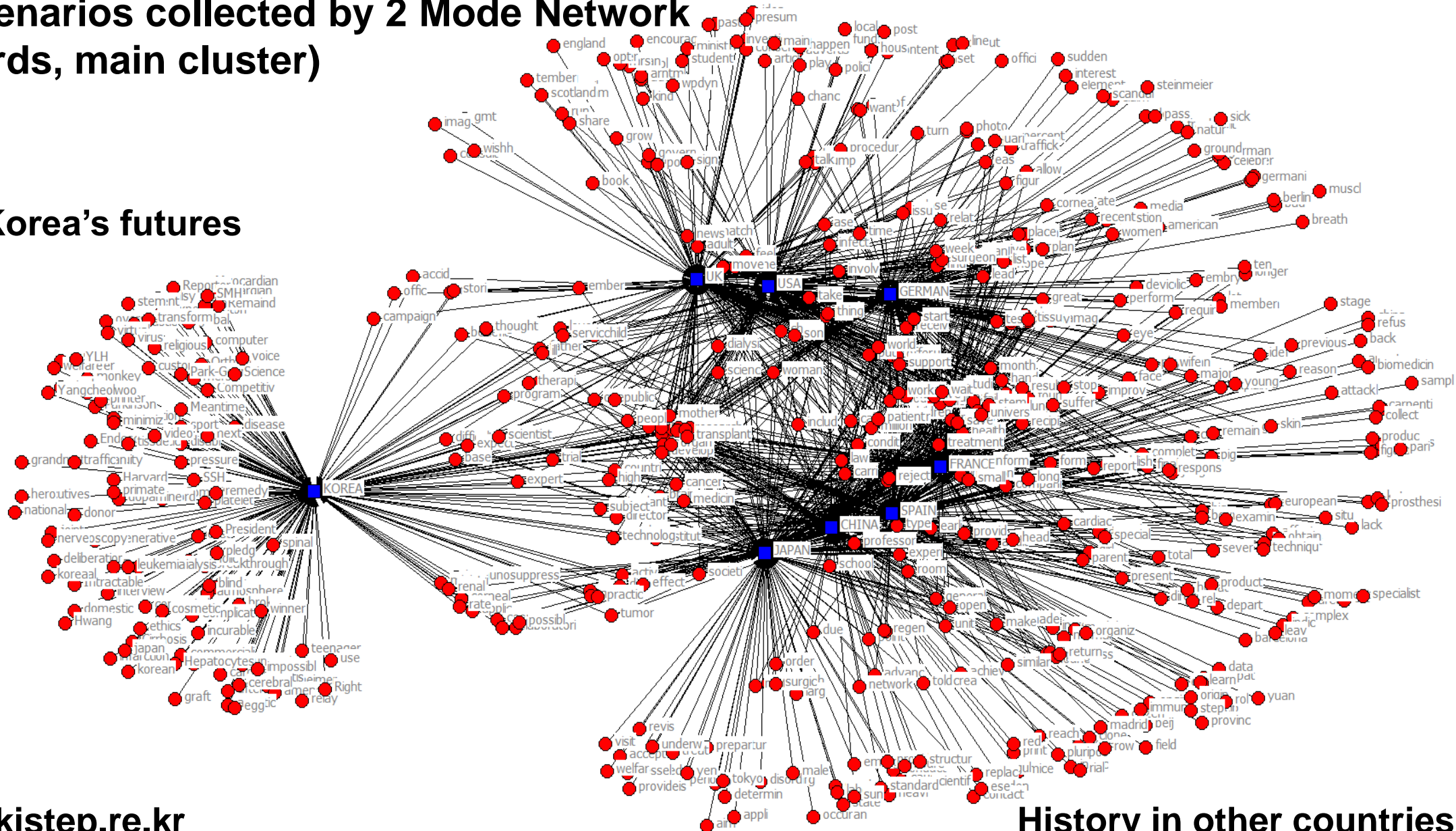
CONCLUSIONS

- 1. The generality of four technology transition pathways are shown by delving into the case of emerging technology.**
- 2. Media discourse is one of useful instruments to collect the plausible scenarios for artificial organ technology.**
- 3. Analyzing a relatively big refined dataset is one of effective tools to draw the pathway of technology development at the global scale with respect to traditional approach.**

Thank you for attentions

Plausible scenarios collected by 2 Mode Network
(Top 200 words, main cluster)

Korea's futures



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History in other countries