

Exploring the Dynamics of Innovation Systems Transition in China

the expected, the unexpected,
and the paradoxical

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Research Background

Emerging Technologies, Trajectories and Implications of Next Generation Innovation Systems Development in China and Russia

<http://www.risingpowers.net/projects/innovationsystems/>

China Team:

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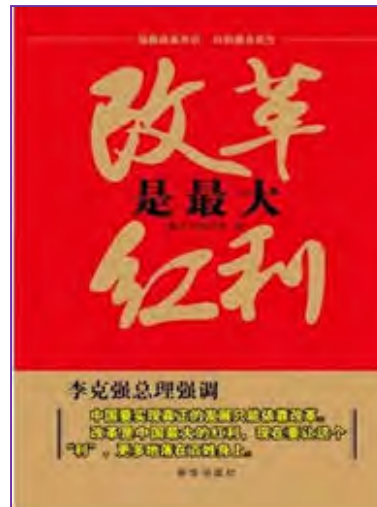


Research Background

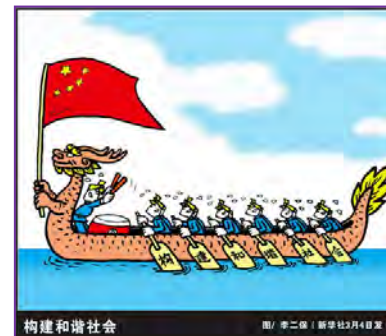
So we know China
is changing at a
(super) rapid
speed...

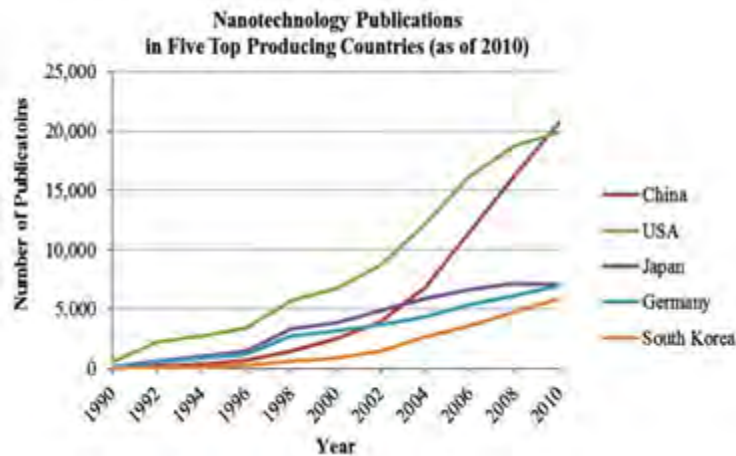


...it is believed
that the only way
out for China is to
continue
changing...

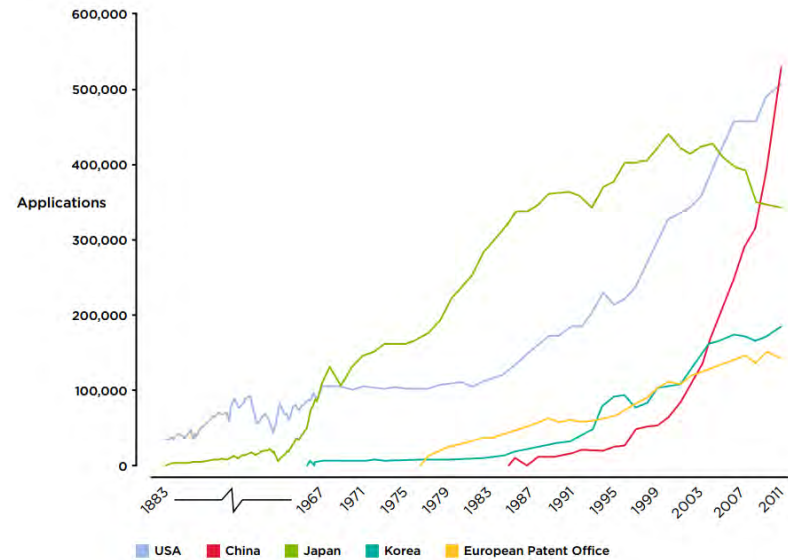


...towards
desired
directions...

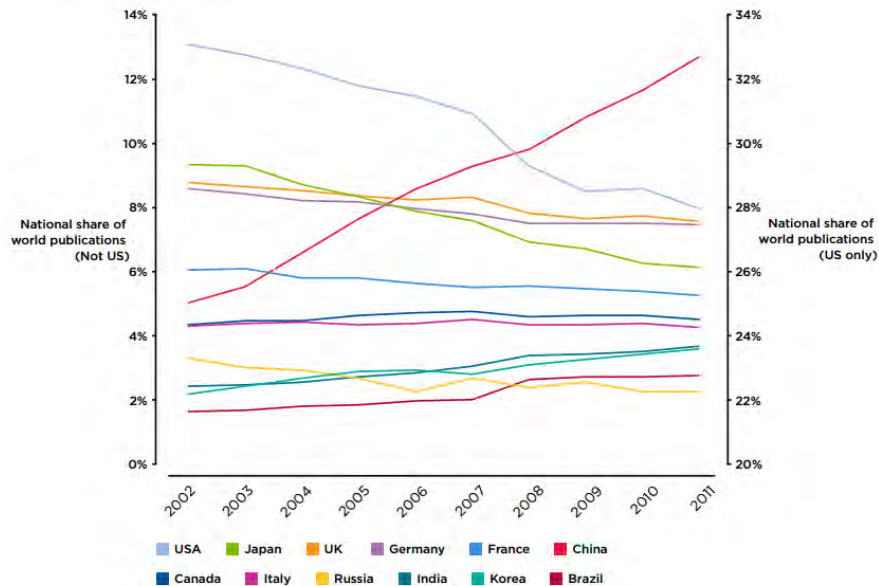




Source: Arora et al., 2012

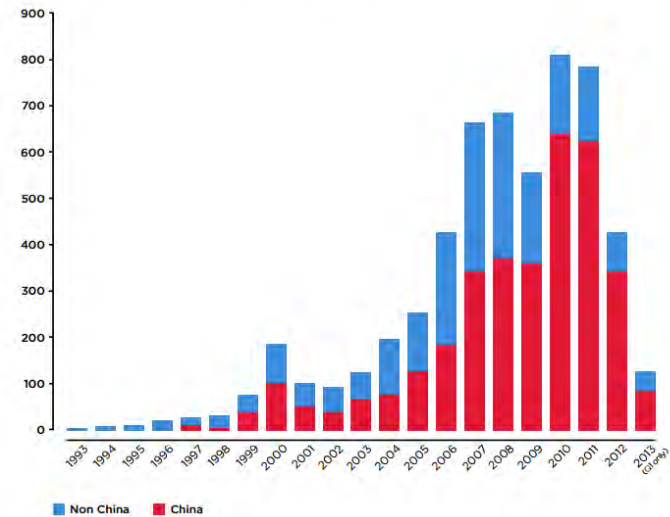


Source: NESTA, 2013



Source: NESTA, 2013

Venture capital investments by year and origin



Source: NESTA, 2013

Reflecting on K. Bound presentation

YES

Narrative 1: China is a science and innovation superpower

YES

Narrative 2: China is a fast follower

YES

Narrative 3: China is a giant with an Achilles' heel

YES

Narrative 4: China is a techno-nationalist

YES

Narrative 5: China is a low carbon pioneer

YES

Run of the Red Queen: A high-technology economy that is highly competitive in second generation, process and incremental innovation

YES

NESTA: China is an absorptive state, increasingly adept at attracting and profiting from global knowledge and networks

What else? What is next?

Research Gap and Objective

Research on the macro picture of China's NIS (Xue, 1997; Baark, 2001; Liu and White, 2001; Gu and Lundvall, 2006; OECD, 2008; Gu et al., 2009; Liu, 2009) mostly take a static, top-down view

Input research
e.g. R&D
spending

Ongoing dynamics of China's
innovation system(s) in
transition is often treated as
a black box.

Output
research e.g.
publications &
patents

WE SEEK:

- **first-hand** understanding of the **dynamics** in transition
- with a special focus on the role played by emerging technologies
- from a **meso-/micro-level, bottom-up** point of view

Tentative Research Questions

RQ1: Are key actors (from government, academia, industry) in the Chinese innovation system(s) becoming more innovative, as apposed to absorptive?

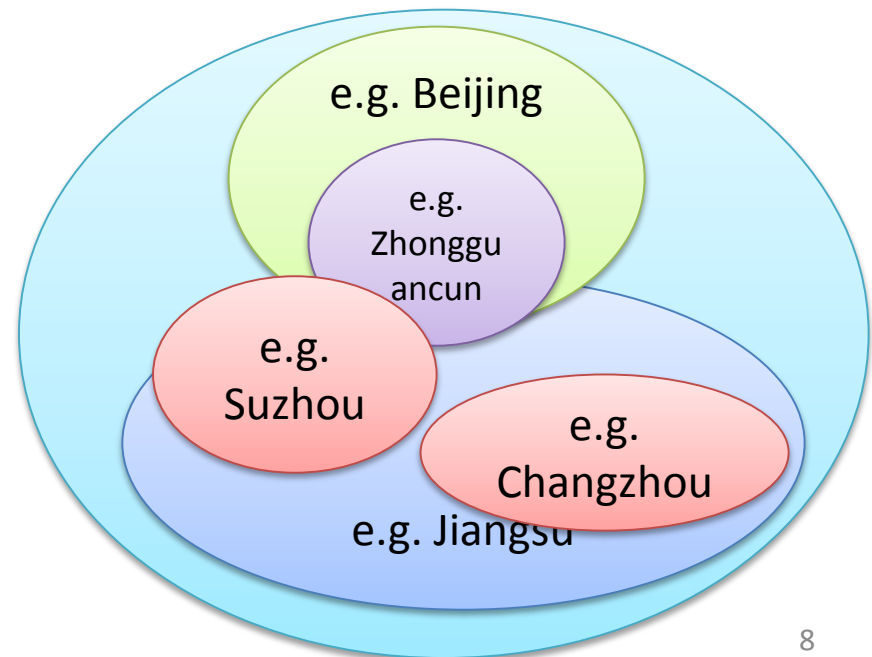
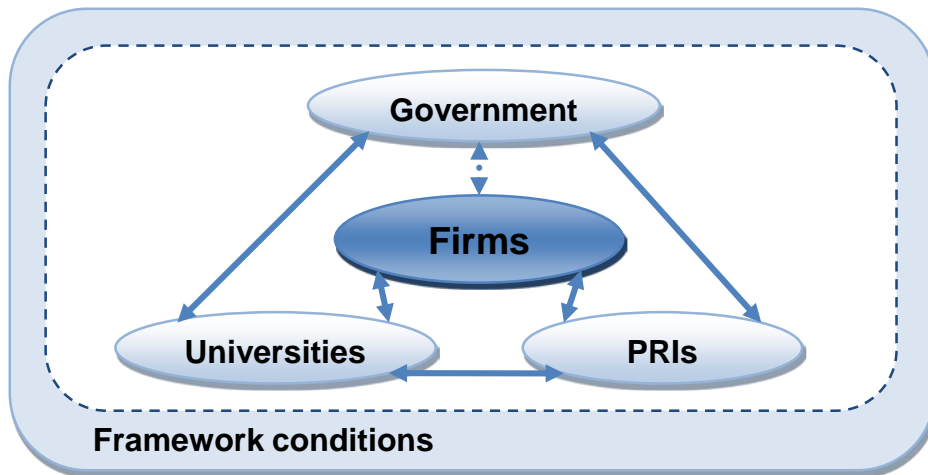
RQ2: Are there signs and trends indicating China's transition towards an indigenously innovative state (as opposed to 'absorptive state')?

RQ3: What have been the key drivers, shapers, and enablers of those signs/trends?

Theoretical Lenses – Innovation Systems

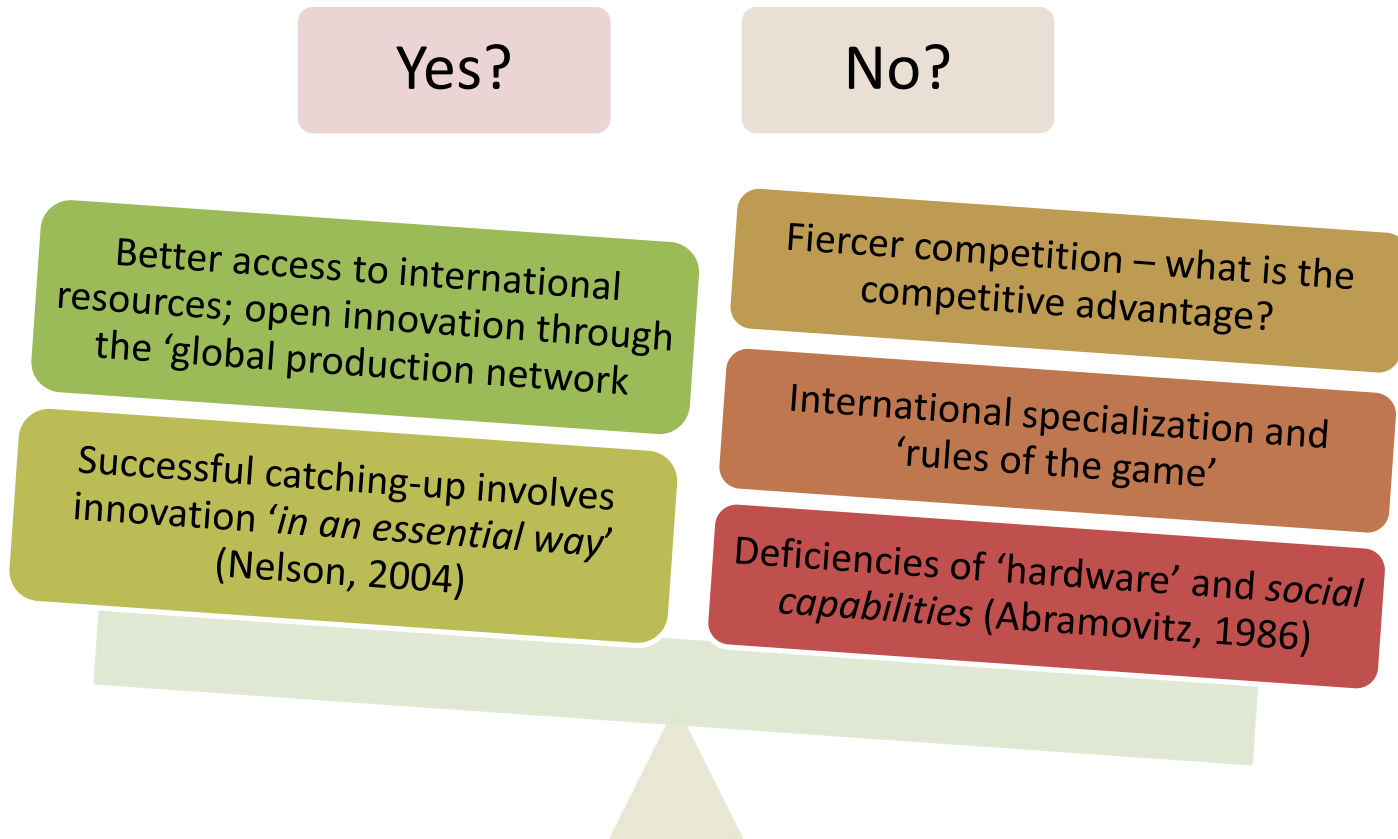
- Rather than a clearly defined NIS, China should be viewed as intertwined clusters of innovation systems of different boundaries (national, regional, local and sectoral).
- Innovation systems consist of actors/stakeholders, institutions, interactions/linkages
- Performing system functions, and subject to system failures.
- Specifically, innovation policies as a key type of forces expected to drive changes of IS.

*'...both a **statement of intent** by those seeking to change or control behaviour, and a **negotiated output** emerging from the implementation process' (Barrett, 2004, p.253).*



Theoretical Lenses – Development Studies

‘Innovation systems in developing countries... need to cater for **different needs**; they build on institutional frameworks that tend to be much **less formalized**, and rules that are **less enforceable**; and the key agents as well as incentives that determine their behaviour tend to be very **distinct**.’ (Altenburg, 2009, p.33)

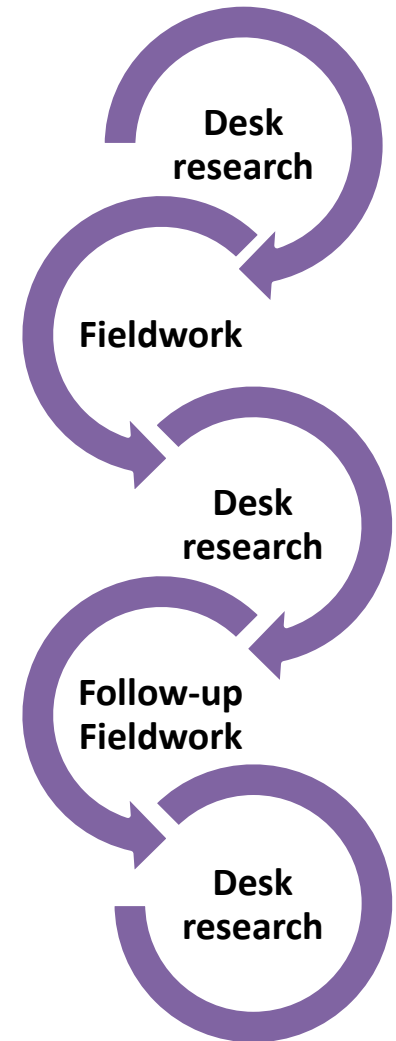


Research Approach

An exploratory, qualitative study based on iterations and triangulation between desk research and fieldwork.

*'...purposive, systematic, prearranged undertaking designed to maximize the discovery of generalizations leading to **description** and **understanding** of an area of social life' (Stebbins, 2001, p.3)*

While we set broad propositions and adopt conceptual lenses, we expect the unexpected and let themes emerge...



Data

Primary	Secondary
<ul style="list-style-type: none"> Interviews <p>Semi-structured with 50+ interviewees from various stakeholder groups</p>	<ul style="list-style-type: none"> Policy documentation <p>Tracing policies in context based on observations from the field</p>
<ul style="list-style-type: none"> Workshop <p>Semi-structured with 10+ participants from academia and industry</p>	<ul style="list-style-type: none"> Organizational documentation <p>Tracing strategies and organizations changes in context</p>
<ul style="list-style-type: none"> Follow-up <p>As needed</p>	<ul style="list-style-type: none"> Unstructured documentation <p>Capturing signs and trends</p>

Drivers of Transition – preliminary findings

**Monumental
investment – strong
'technological
congruence'**



**New thinking
of governance**

**Regional
competition,
specialization and
mutual learning**



Returnees!



Other Observations

Themes reinforcing China's current approach:

- central planning
- infrastructure intensive
- Beijing focused??
- FDI
- 'copying'
- state owned companies?
- growth over EHS
- Internet blocking...?

Themes indicating a change in China's approach to innovation:

- entrepreneurship
- human resource focused (esp. "sea turtle" returnees)
- other regions
- indigenous approaches (i.e., lower cost approaches)
- concern about EHS

Thank you
Questions and comments are welcome

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