

# Towards a New Model of EU-China Innovation Cooperation

**Bridging Missing Links Between International University  
Collaboration and International Industry Collaboration**

Lecture at Lise Meitner Research Group, MPIWG

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# Towards a new model of EU-China innovation cooperation: Bridging missing links between international university collaboration and international industry collaboration

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*Article*

# Building University-Industry Co-Innovation Networks in Transnational Innovation Ecosystems: Towards a Transdisciplinary Approach of Integrating Social Sciences and Artificial Intelligence

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# Long story short

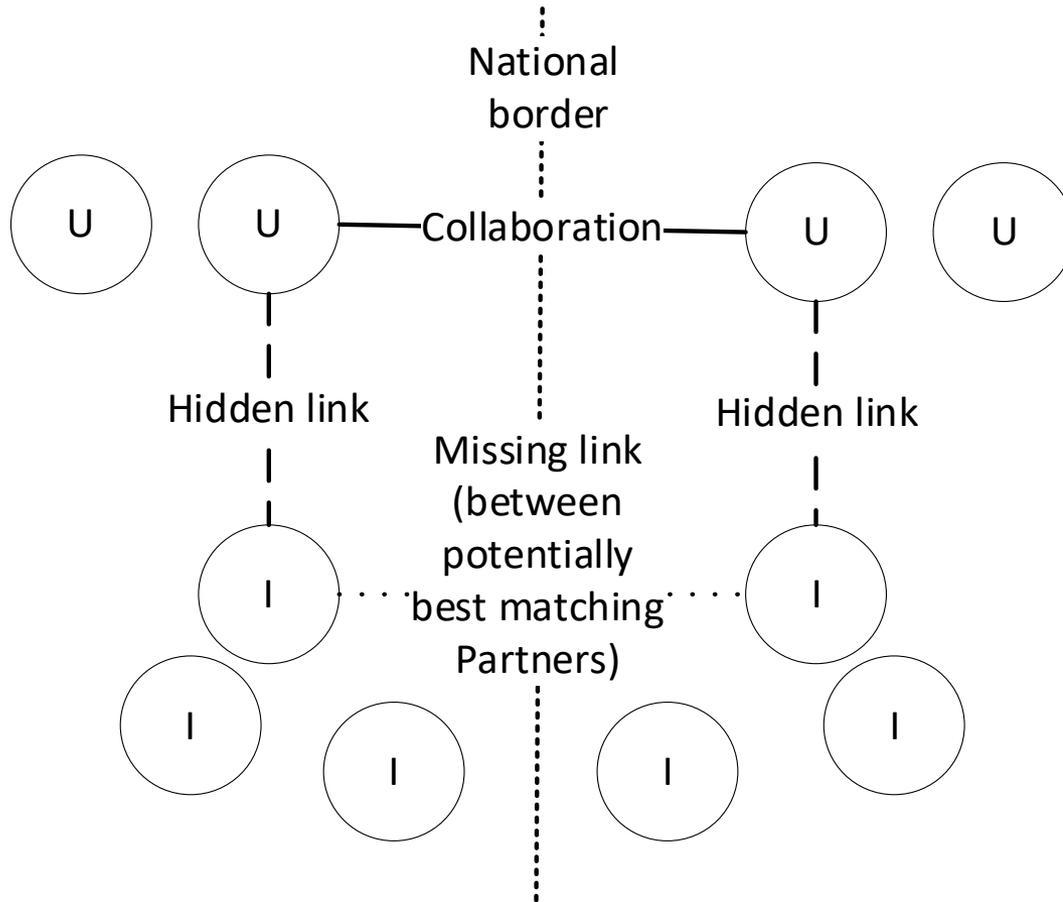
# A challenge in EU-China industry cooperation

- When European high-tech firms, especially small- and medium-sized enterprises (SMEs), seek Chinese counterparts for cooperation, they normally go directly to the industry sector, sometimes through business brokers.
- As a result, the Chinese partners that first appear to them are not necessarily the most suitable ones.
- This could be explained by three limitations of business brokers.

# Three limitations of business brokers

- Candidate companies in China
  - The business brokers, e.g., consulting companies or governmental business promotion agencies, have a limited pool of Chinese companies as candidates to be matched with European SMEs.
- Reaching weak ties
  - When matching collaborators, human decisions are often subject to the “homophily principle”—a tendency in which people form ties with similar others. Selecting a “friend of a friend” helps strengthen existing social clusters but does not help to reach those unknown communities and individuals, who could potentially contribute to innovation.
- Capacity to overcome the limitations
  - Although one may notice the limitation mentioned above, it is difficult to find suitable approaches to resolve the problem.

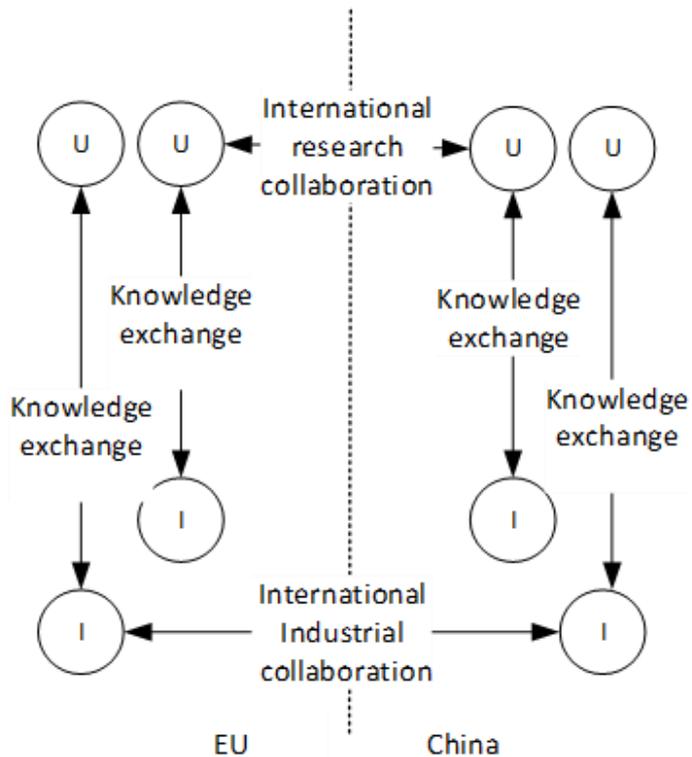
# The missing (and hidden) links



U: University  
I: Industrial organisation

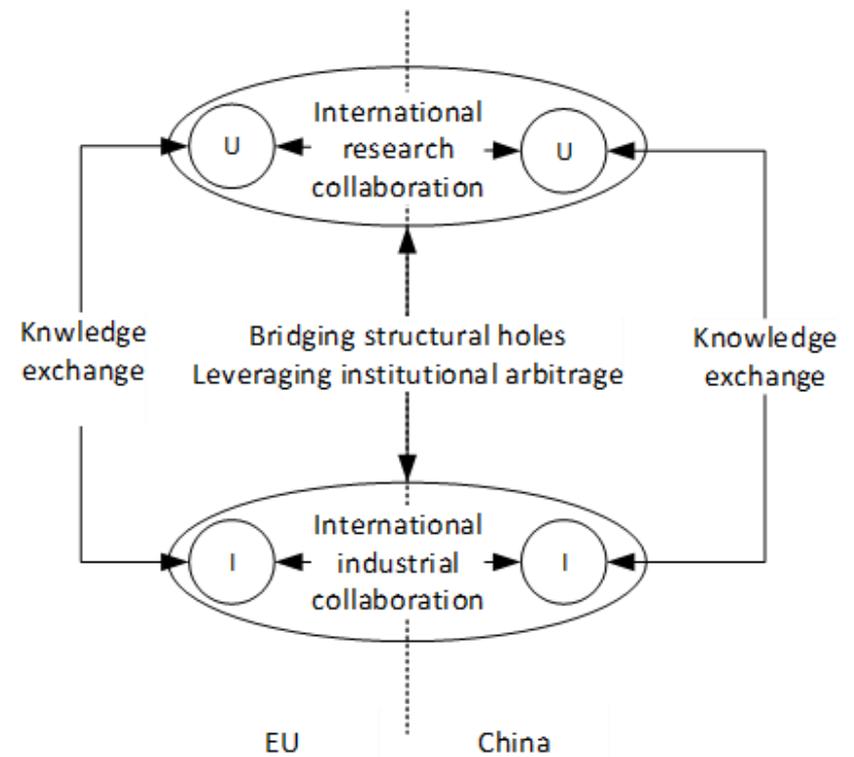
# Traditional model vs. new models

Traditional model of international innovation cooperation



U: University; I: Industrial organisation

New model of international innovation cooperation



U: University; I: Industrial organisation

# Universities are playing the role business brokers

- Besides mitigating challenges, international university collaboration also helps take advantage of more opportunities in international industry collaboration.
- Most importantly, transnational university-industry co-innovation networks (TUICNs) are formed.
- These distinguish the bridging role of international university collaboration from that of other (traditional) brokers or intermediaries, which only help connect industry actors for collaboration without joining them in the innovation processes.
- International university collaboration could also benefit from international industry collaboration.

# Re-visiting the story

# Background

- Compared to the proliferation of research on innovation on a national scale and innovation cooperation within the EU, the research on innovation cooperation between EU member states and third countries is lagging.
- One of the most important but challenging cases is the EU's innovation cooperation with China.
  - It is important because China is not only the EU's second-largest trade partner, but also has become a powerful player in science, technology and innovation (STI) .
  - It is challenging not only due to the contrasting socio-economic systems of both sides but also because of changing dynamics in EU–China relations.

**Context:  
EU-China  
science,  
technology and  
innovation  
cooperation**

The Agreement on Science and Technology Cooperation between the EU and China in 1998

Joint Declaration on the EU-China Innovation Cooperation Dialogue in 2012

EU-China 2020 Strategic Agenda for Cooperation, 2013

EU-China—A Strategic Outlook (European Commission, 2019)

# Transformation in EU-China cooperation

- The EU-China collaboration in both the industry and university sectors has been transforming in the past decade.
  - EU-China university collaboration: The emphasis has extended from international scholarship exchange to being more responsible to the broader needs of developing the EU-China partnership.
  - EU-China industry collaboration: China's role in its industry collaboration with the EU is shifting from an important market and trade partner to an innovation partner
- The transformations of EU–China cooperation in both higher education and industry require synergy building (Cai et al., 2019).
- However, both researchers and practitioners pay little attention to such synergy building.

## A paradox in innovation studies

- While there are wide discussions in the literature on both the vital role of universities in national/regional innovation systems and the tendency of innovation systems to become globally interconnected,
- little research attention has been paid to the engagement of universities, particularly international university collaboration, in transnational innovation (eco)systems.

## Research question

- How does European and Chinese university collaboration help European companies turn collaboration challenges with Chinese counterparts into opportunities through developing transnational university-industry co-innovation networks (TUICNs)?
- TUICNs which are characterised by ‘collaboration, coordination, co-creation, convergence, and complementary’ (Saragih and Tan, 2018, p. 361) as core features of innovation ecosystems (Cai et al., 2020).

# Theoretical framework

- Social network theory: Sparse networks (based on weak ties) vs. dense networks (based on strong ties)
- Institutional theory: Institutional distance vs. institutional proximity (differences or similarities between the regulatory, cognitive, and normative institutions of two countries)
- Both theories suggest that challenges and opportunities are the two sides of the same coin of sparse networks and institutional distances that characterise TUICNs

# Social network theory

- Weak ties (Granovetter, 1973) and structural holes (Burt, 2000): Emphasising the actors who bridge isolated networks and acknowledging their importance in innovation.
- Innovation requires a combination of both strong and weak ties (Abrahamson and Rosenkopf, 1997; Capaldo, 2007; Michelfelder and Kratzer, 2013).
- ‘weak ties aid exploration (the generation of new ideas), whereas strong ties aid exploitation (the implementation of new ideas)’ (Barrie et al., 2019, p. 212).

# Challenges/opportunities of cooperation in sparse networks for innovation

Challenges	Opportunities
<p>Impeding the intense interactions that are necessary to gain a deep understanding of ideas in an innovation process</p>	<p>Source of unique knowledge and innovative ideas</p>
<p>Creating obstacles to action coordination (a lack of trust between actors in the networks)</p>	<p>Free flow of information, ideas and knowledge.</p>
<p>Inefficient implementation of innovative ideas</p>	<p>Efficient knowledge exploration and recombination</p>

Adapted from Alguezaui and Filieri (2010)

# Institutional theory

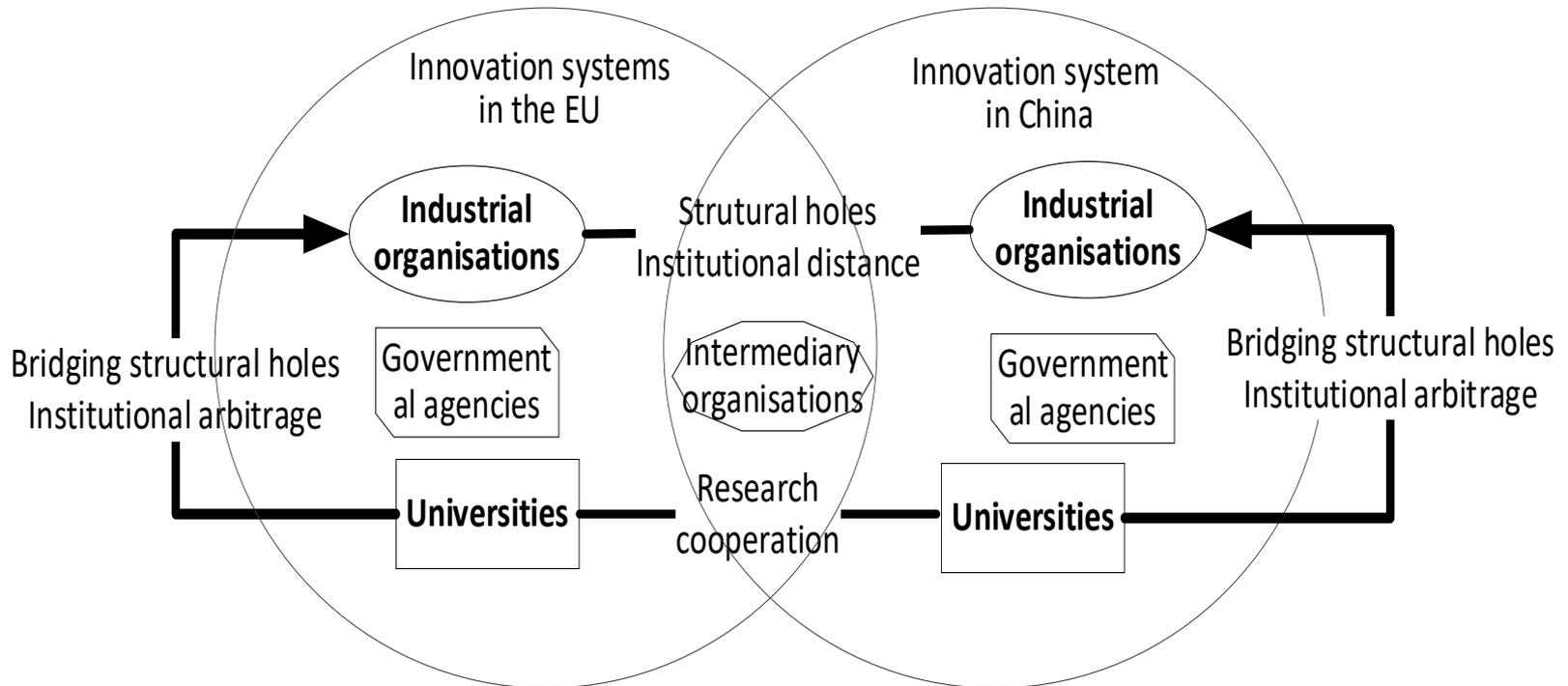
- Institutional difference (Kostova & Zaheer, 1999) and institutional proximity (Bochma)
- Institutional proximity reduces uncertainty and provides stable conditions for interactive learning and innovation, but it could harm innovation due to the problem of ‘lock-in’ (Boschma, 2005).
- Institutional distance may offer solutions to lock-ins (Perkmann and Phillips, 2011).
- Institutional arbitrage refer to the practice of arranging activities in different institutional settings to benefit from institutional differences (Perkmann and Phillips, 2011)

# Mechanisms of institutional arbitrage

Benefits	Mechanisms
<b>Resources</b>	Diverging organisational logics generate differences in resource munificence
	Different valuation practices generate exchange opportunities
	Diverging interests reduce competition and opportunism
<b>Legitimacy</b>	Association with high-status actors in other fields
	Signalling effects via association with values and practices in other fields
<b>Ideas</b>	Borrow elements from other logics
	Break out taken-for-granted procedures

Adapted from Perkmann and Phillips (2011)

# The role of international university collaboration in building TUICNs: Social network and institutional theory perspectives



# The roles of international university collaboration in building TUICNs

Roles from theoretical perspectives	Specific roles
<b>Bridging structural holes</b>	<ul style="list-style-type: none"> <li>• Connecting industrial partners from different countries</li> <li>• Building trust between the industry partner organisations bridged through university collaboration</li> </ul>
<b>Leveraging institutional arbitrage</b>	<ul style="list-style-type: none"> <li>• Giving industrial actors access to new resources</li> <li>• Enhancing the reputations of international companies in their cooperation countries.</li> <li>• Breaking down taken-for-granted procedures</li> </ul>

## Empirical data

- In-depth interviews with 18 actors involved in EU–China innovation cooperation, conducted during Autumn 2017 – Spring 2018.
  - The matchmaking tours of ENRICH, an EU-funded project for supporting and connecting European research, innovation and business organisations to China, taking place in October 2017 and May 2018 respectively.
  - The Sino-Finnish Forum on Universities as Platforms for Scientific Innovation and Technology Transfer held in November 2017.

## Research question (A reminder)

- How does European and Chinese university collaboration help European companies **turn collaboration challenges** with Chinese counterparts **into opportunities** through developing transnational university-industry co-innovation networks (TUICNs)?

# What challenges to be turned into opportunities?

**Partner matching**

European and Chinese companies are seeking collaborative partners from each other.

**Partnership building**

European and Chinese companies are developing and consolidating their collaborative partnership.

**Collaborative value creation**

The collaborative partners are benefiting from the value that they have jointly created.

**1. Challenges in seeking collaborative partners (4.1)**

**2. Challenges in trust building (4.2)**

5. Challenges in network sharing

3. Challenges in decision-making/implementation  
**4. Challenges in industrial image building in China (4.4)**

**6. Challenges in resource acquiring (4.3)**  
**7. Challenges in seeking innovative solution (4.5)**

Perspective of structural holes  
 Perspective of institutional distances

# Challenges cannot be resolved through international university collaboration

- Challenges in decision-making and implementation
- Challenges in network sharing

# Challenges in decision-making and implementation

- Caused by normative differences between both sides.

‘Basically, the Chinese party and our party [from Country A] come to negotiations from totally different starting points. On the Chinese side, they have already done some kind of homework regarding what can be decided before coming to a negotiation. Because of our tradition, unfortunately, we spent lots of time in different negotiations, and it takes much more time to get any kind of decision.’

- When it comes to implementation, however, ‘that is the advantage on the European side because there is less possibility of change when something has been decided’.

# Challenges related to network building

- Chinese ways of connecting people often hinders European companies from effectively utilising their Chinese partners' networks.
- Compared to Europeans, who are generally fine with sharing their networks with friends, Chinese people have a strong sense of ownership of their networks.

'If someone wants to get connected to some people in my country (an European country) in my network, I will just share the contact details and then let them talk to each other.... If I ask my Chinese friend to introduce me to someone in his network, he would be in that meeting when I meet the introduced person.'

# Challenges can be resolved through international university collaboration

1. While many European technology companies have been attracted by envisioned opportunities in China, they knew little about the situation there and thus had difficulties finding the most suitable partners.
2. Trust building is crucial for partnerships between European and Chinese companies, but it is costly.
3. The realisation of innovative business ideas is often constrained by available financial resources.
4. Difficult for many European SMEs to promote their visibility and reputation in the Chinese market.
5. Challenge faced by European companies in protecting their intellectual property.

# Challenge 1

- While many European technology companies have been attracted by envisioned opportunities in China, they knew little about the situation there and thus had difficulties finding the most suitable partners.

‘The Chinese market is ultra-competitive. Today’s situation is that Chinese technology companies, including Chinese start-ups, have developed very rapidly, and one thing that these companies from [Country A] should do is try to understand what the current state of the Chinese environment is – in order not to make false assumptions.’

# Proposition 1

- European companies can better match with Chinese industrial partners through EU-China university collaboration.

‘For Chinese companies, it is quite difficult to collaborate with universities, because it is very difficult for the Chinese local government and risk investors to understand the role of a university.... In China, academies have quite a bad reputation of being ineffective. Therefore, Chinese companies sometimes think that academic activities are like a ‘money pit’; it is good to fund a university, but it doesn’t produce money for society. Therefore, our university established a spin-off company, to facilitate its business collaboration with Chinese companies.’

## Challenge 2

- Trust building is crucial for partnerships between European and Chinese companies, but it is costly.

‘Building trust is a key issue, but it takes time. It is not built over one trip to China for two weeks or even for a few months.... We even realised that some companies had spent two or three years in China before getting their first deal.’

## Proposition 2

- Trust between European and Chinese companies can be more quickly built if they are connected through EU-China university collaboration.

‘When we (A European university spin-off) are expanding our business in China, we developed a policy of only working with Chinese companies that have close ties with [the university A’s collaborating Chinese universities.]’

## Challenge 3

- The realisation of innovative business ideas is often constrained by available financial resources.

If there is an official negotiation where some kind of ministers or high-level political decision-makers are with the Chinese partners, they can say that they have the resources and [to make the deal] we [companies on the European side] need to provide two million euros [as a co-investment]. [The challenges are], first of all, we don't have the two million euros, and even if we did, we don't have permission to make commitments on this negotiation table.

## Proposition 3

- The EU-China university collaboration could supplement their industry partners with resources that are rarely available in the industry sector.

[Country B]’s companies can enjoy tax benefits for donating money to the Sino-B College. However, tax reduction or exemption might not be their major consideration. Donating funds to education not only reduces the tax but also enhances their corporate image. The companies can benefit from both.

## Challenge 4

- Difficult for many European SMEs to promote their visibility and reputation in the Chinese market.

Indeed, for an 'unknown' European company, the 'Chinese market is very competitive; [if you want to be successful] you either have a very good brand that is already known in the market, or you have some way to make it known very quickly'.

## Proposition 4

- European companies, especially SMEs, can quickly establish their reputation in China when they are associated with prestigious European and Chinese universities in collaborative partnership.

A spin-off of a European research university immediately gained a good reputation in China because of the university's position as a global leader in the scientific field and its long-time research collaboration with a Chinese university.

## Challenge 5

- Challenge faced by European companies in protecting their intellectual property (IP).

'First of all, Chinese companies patent a lot. So, one thing that a Western company needs to be aware of – they might actually violate a Chinese company's patent when going to China, which is a big risk. But the bigger risk still is that your technology becomes very much exposed when you go to China, and China is still fairly enough a copy culture.... IP protection schemes are more and more enforced in China. But, naturally, there is a delay while the Chinese government wants to of course learn – as any other government – about these new technologies.'

## Proposition 5

- The European companies are likely to develop novel ways of business operation in China when closely working with European and Chinese universities.

‘So, I would not always worry about the IP and copying, though we have to be aware of it, as it is a real risk. But when you understand that you can create new value that you could not create alone, it helps you find new solutions for a much larger market and a larger audience. And this could be a big competitive edge for Chinese and Europeans working together.... So, the one thing you should always ask is: ‘What can we achieve together?’

# Findings

- Proposition 1: European companies can better match with Chinese industrial partners through EU-China university collaboration.
- Proposition 2: Trust between European and Chinese companies can be more quickly built if they are connected through EU-China university collaboration.
- Proposition 3: The EU-China university collaboration could supplement their industry partners with resources that are rarely available in the industry sector.
- Proposition 4: European companies, especially SMEs, can quickly establish their reputation in China when they are associated with prestigious European and Chinese universities in collaborative partnership.
- Proposition 5: The European companies are likely to develop novel ways of business operation in China when closely working with European and Chinese universities.

## Policy implications

- There should be more dialogue between two areas of policymaking: EU-China higher education cooperation and EU-China industry cooperation.
- European universities and companies, especially those in the same countries or regions, should strengthen their communications/interactions not only for promoting local economic development but also for developing joint China strategies/actions if they both have an interest in cooperation with China.
- To realise the potential of EU-China university collaboration in EU-China innovation cooperation, innovative services provided by governmental agencies or through public-funded projects should be envisioned.

# Where to go from here?

# Changing EU-China relations

- European Commission, 2013: EU-China 2020 Strategic Agenda for Cooperation
- European Commission, 2019: EU–China – A Strategic Outlook
  - “the balance of challenges and opportunities presented by China has shifted”; EU sees China as both a partner and a competitor in the economic domain.
- New China strategies are on the way in European countries.
- Evidence of the changes in statistics.

# What new explorations are expected?

- To explore new challenges in EU-China innovation cooperation (More challenges on the political dimension).
- To discover and speculate innovative approaches to resolving the challenges or turning the challenges into opportunities.
- To enhance theoretical accounts of the role of internationalisation of higher education (including international university collaboration) in international innovation cooperation.

# How can the current study shed light on future research?

- Challenges in one sector can be mitigated by engaging actors in other sectors (explained by weak ties and institutional arbitrage).
- From ‘transnational university-industry co-innovation networks’ to ‘Transnational Triple Helix model’ (from dyad to triad).
- From being efficient to being resilient.
- From innovation cooperation to innovation and sustainable development cooperation

# History and future

**In 1906 the president of the University of Illinois, Edmund J. James, wrote to the American President Roosevelt:**

‘The nation which succeeds in educating the young Chinese of the present generation will be the nation which for a given expenditure of effort will reap the largest possible returns in moral, intellectual, and commercial influence... Trade follows moral and spiritual domination far more inevitably than it follows the flag.’



# Still valid today but can be extended

- What connects the words is not merely trade but science, innovation and geopolitics.
- International university collaboration engages in not only education but also research and the third mission.
- The benefits are two-way.

# Call for rethinking internationalisation of higher education (IoHE)

- IoHE to be more resilient in coping with the challenges of global crises in short term
- IoHE to help society mitigate the crises in the long run

- Thank you!
- Contact: [yuzhuo.cai@tuni.fi](mailto:yuzhuo.cai@tuni.fi)