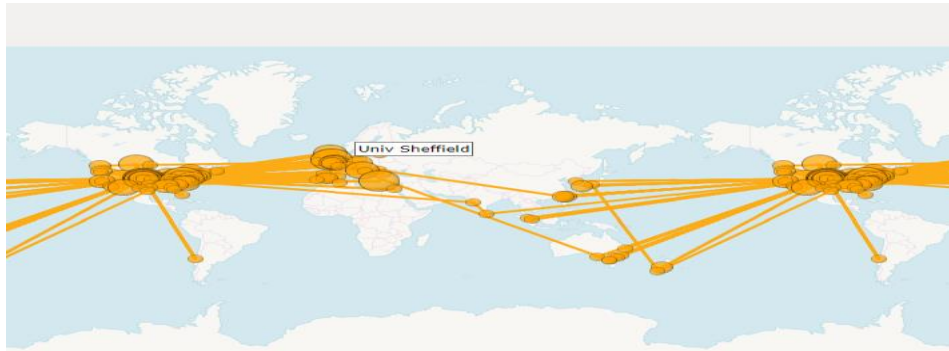
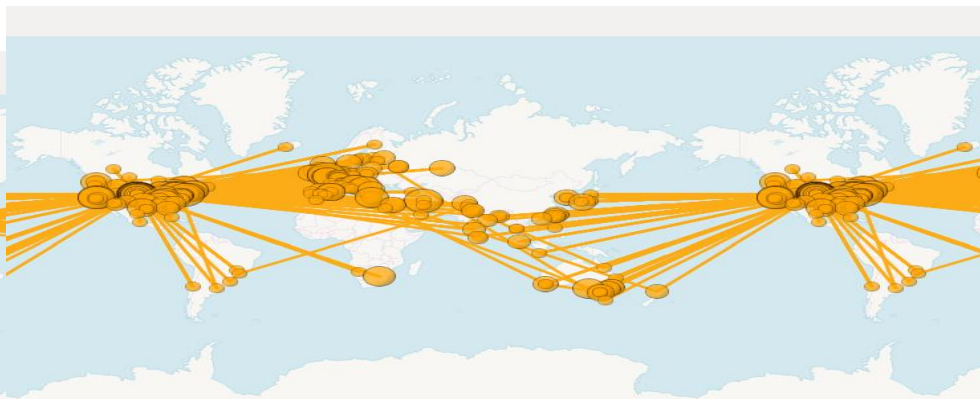


## **A Comparative Analysis on the International R&D Collaborations in Multiple Emerging Sectors**

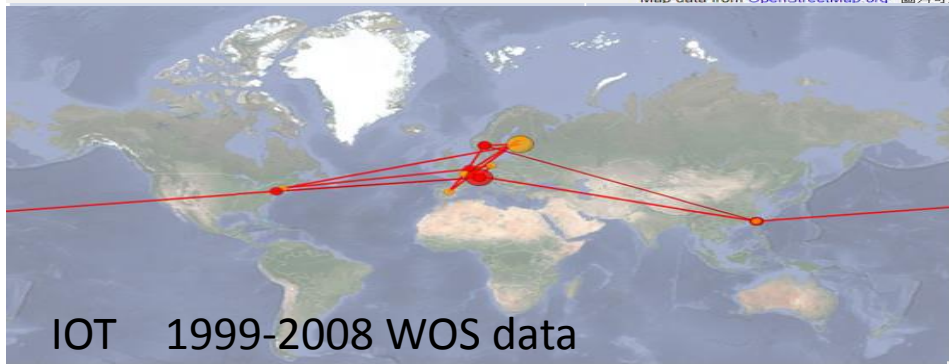
This paper aims to conduct an in-depth study of what role the technology policy plays in enhancing the international collaborations between the US and East Asia. Through analyzing a few selected emerging sectors, this paper attempts to explore how to establish strong international networks between the US and East Asia in 1999-2018. Technology domain will be spread out on **biomedicine, Internet of Things, and artificial intelligence, and smart manufacturing (industry 4.0)**. The main research question this paper tries to answer is what role the innovation policy plays in enhancing the international R&D collaborations in various emerging sectors? We assume the essential differences of various kinds of emerging technologies, the policy model has to be tailor-made to stimulate different emerging sectors. This study therefore proposes a conceptual framework which integrates the concepts of innovation ecosystem, innovation networks, and sectoral innovation systems to study the dynamic systemic features in building international innovation networks. Comparing the networks dynamic of 1998-2007 and 2008-2017 in the four selected emerging sectors, our preliminary finding shows that the R&D collaborations in smart manufacturing (industry 4.0), the international collaboration comes in rather late. In the biotechnology, internet of thing, and artificial intelligence sector, the international RD collaboration spread out from purely concentrating on global north into global south. The ultimate contribution of this paper is to identify the systemic features and propose a policy framework for better stimulating the development of emerging sectors with the aim of maintaining the leading status of the US in the era of global technological change.



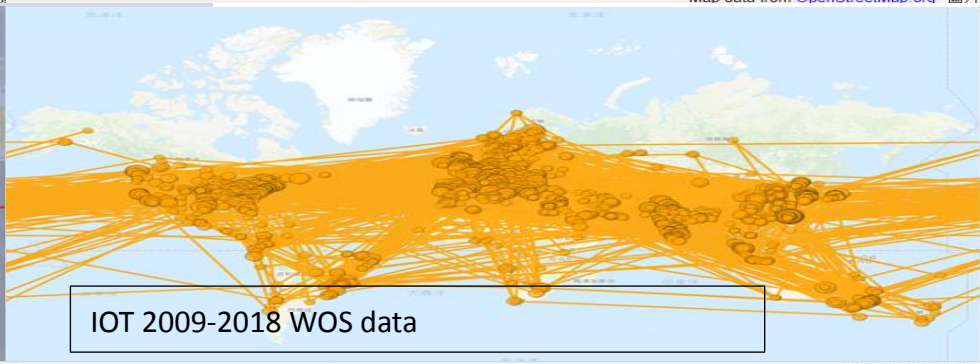
AI 1999-2008 WOS data



AI 2009-2018 WOS data

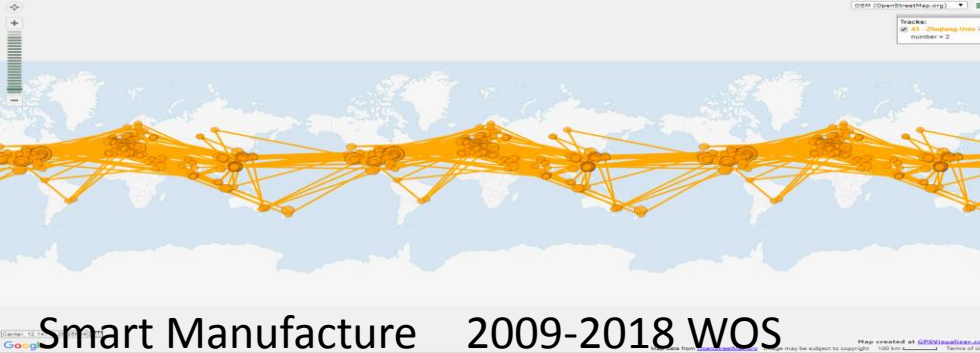


IOT 1999-2008 WOS data



IOT 2009-2018 WOS data

**X No Collaborations Data**

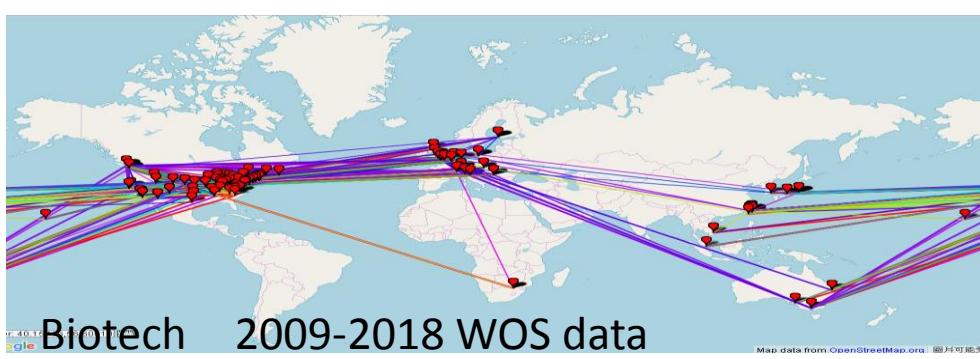


Smart Manufacture 2009-2018 WOS

Smart Manufacture 1999-2008 WOS



Biotech 1999-2008 WOS data



Biotech 2009-2018 WOS data