Innovation-Hub Ecosystem:

The Conversation and Discussion between Australia and Japan*

By the Innovation-Hub Ecosystem Research Team**

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**** For additional information, please visit the official website: https://ajf.unisa.edu.au/**

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Introduction

Science parks are regional innovation hubs, which play an essential role in networking resources such as physical infrastructure and R&D policies for technology output. Effective government policies and supports can provide clear guidance on the use of resources to stimulate interactions among tenant companies in science parks and external stakeholders, including research institutions and industrial experts. As government policies may determine the relationship between knowledge creation and research output in a science park, many countries, including Australia and Japan, have set the commendable objective to stimulate and commercialise technologies via innovation hubs. However, standalone facilities do not in themselves ensure innovation and economic benefits. An ecosystem is consequently developed to enable interdependent yet hierarchically independent and heterogeneous participants to generate values collectively.

A well-developed ecosystem for innovation has been an ongoing concern shared by Australian and Japanese policymakers, practitioners, and academics. While governments of both countries have made generous efforts in stimulating and commercialising new technologies via innovation hubs, outcomes of such efforts vary across hubs in different regions because physically standalone facilities may not be efficient and productive.

With the funding support of the Australia-Japan Foundation, Department of Foreign Affairs and Trade, Australia, the Innovation-Hub Ecosystem Research Team initiated a public dialogue among Australian and Japanese policymakers, industries, and researchers. They shared thoughts on an online-offline-hybrid forum between 29 and 30 November 2021 at Adelaide, Australia and Tokyo, Japan. The conversion and discussion facilitated a mutual understanding of innovation-hub ecosystems in Australia and Japan and strengthened collaborative engagement between the two countries. Thoughts and ideas generated from the dialogue have been affecting innovation-hub professionals as well as the public in both countries and beyond.

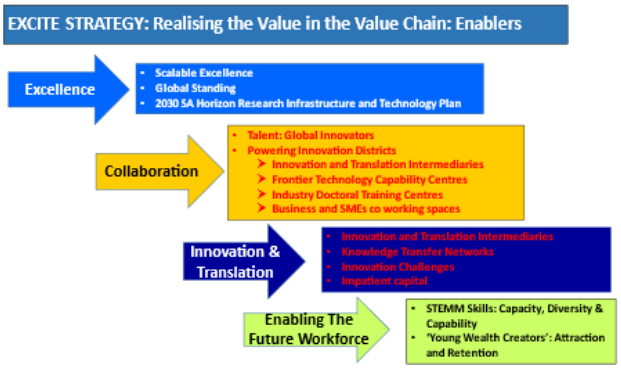
Dialogue between Two Countries

The dialogue among Australian and Japanese policymakers, industries, and researchers has focused on regional policymaking for innovation hubs, the primary role of science parks in regional innovation, and the university's function in innovation hubs.

Regional Policymaking for Innovation Hubs

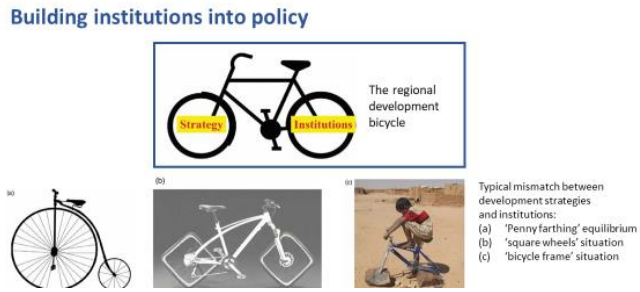
By integrating the resources of all stakeholders, an innovation-hub ecosystem can be built in two ways. One is the Australian model, where policymakers limit their intervention in innovation hubs and rely on the market and practitioners to develop innovations. An alternative way is the Japanese model, where policymakers prioritise local systems with regulatory protection and promote collaboration between economic actors, including government agencies, practitioners, and research institutes. Despite different approaches adopted by Australian and Japanese policymakers, the dialogue has shown the potential to complement each other.

On the Australian side, Professor Caroline McMillen, the Chief Scientist of South Australia, introduced an innovation strategy (i.e., EXCITE, Figure 1). In facilitating the diffusion of new technology and enhancing productivity via innovation hubs, this strategy aims at making policies for Australian businesses to adopt technologies, products or processes, and new-to-market technologies. Innovation hubs and districts are essential for the policy initiative because they develop a specific relationship between regions and innovators by providing physical cityscapes, social networks, peer groups, restaurants, houses, investors, transport links, and so on.



Figture 1. EXCITE Strategy

Furthermore, Professor Andrew Beer shared his thoughts on crucial questions of innovation-hub policymaking (Figure 2): Do innovation-hub ecosystems positively contribute to growing businesses and employment? And why and how do the ecosystems work? In response to these crucial questions, Professor Beer proposed that innovation ecosystems are



Figture 2. Policymaking for Innovation Hubs

fundamental to economic success in the 21st Century and knowledge-based economy. Also, although innovation ecosystems have many components, many of the components of innovation ecosystems have a track record of success. Therefore, innovation ecosystems and their parts enable change in the economic trajectory of Australian cities and regions by providing a focus for a narrative of positive transformation; mobilising public sector, private sector and community entrepreneurship; and delivering a clear direction on both the application of new technologies/opportunities and the assets already embedded locally.

On the Japanese side, Professor Terje Grønning shared findings of eight areas in Japan, which are situated at a minimum of 100 kilometres from the metropolises containing the leading universities, research institutes, and the majority of the science-based businesses (Figure 3). These findings showed that Mie and Toyama's two initiatives may be classified as "Wide" when it comes to activity locations since they do not operate with a physical innovation hub. Instead, some meetings and gatherings appear to function as hubs for initiating communication and collaboration. On the other hand, Ehime, Kagawa, and Yamaguchi are "Medium". Most of the activities appear to be in the participating universities supplemented with horizontal gatherings in the same vein as those at the Wide initiatives. However, Yamaguchi has plans to establish a separate, physical hub shortly. The two remaining initiatives, Tottori and Yamagata, are "Narrow" because most activities appear to be concentrated on a science or research park that functions as the initiative's hub. Therefore, Japanese policymakers tend to take organisational forms of regional innovation hubs in accordance with specific conditions of areas.

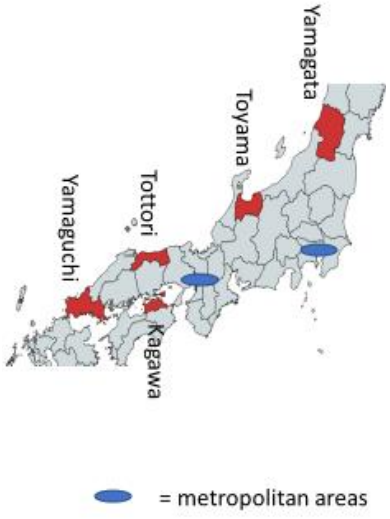


Figure 3. Metropolitan Areas in Japan

Science Park as an Innovation Hub

Due to different policymaking focuses on innovation-hub ecosystems, science parks are designed and operated differently in Australia and Japan, though there are certain similarities

that imply the potential of complementary policymaking. Both differences and similarities were discussed by Australian and Japanese policymakers, practitioners, and academics

As a worldwide-known molecular biologist and computer scientist, Professor Masaru Tomita shared his experience in establishing and operating the Tsuruoka Science Park in Tsuruoka City, Japan (Figure 4). Based on the idea of sprouting new industries in the city and fostering talent in future generations, the Tsuruoka Science Park was founded at the beginning of the 2000s as a hub for enterprises and research institutions. Besides this science park's history and achievements, Professor Tomita highlighted the principle that has continuously led Keio University to give birth to a string of unique companies.

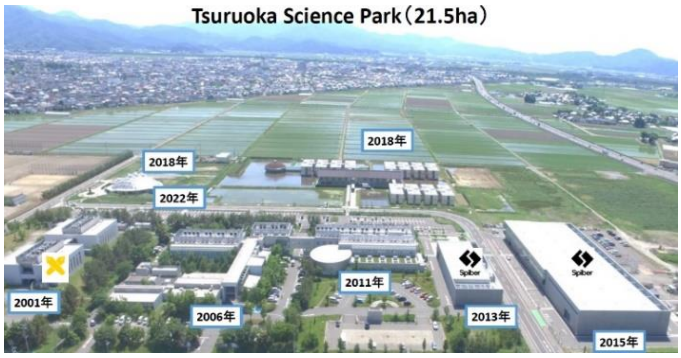


Figure 4. Tsuruoka Science Park

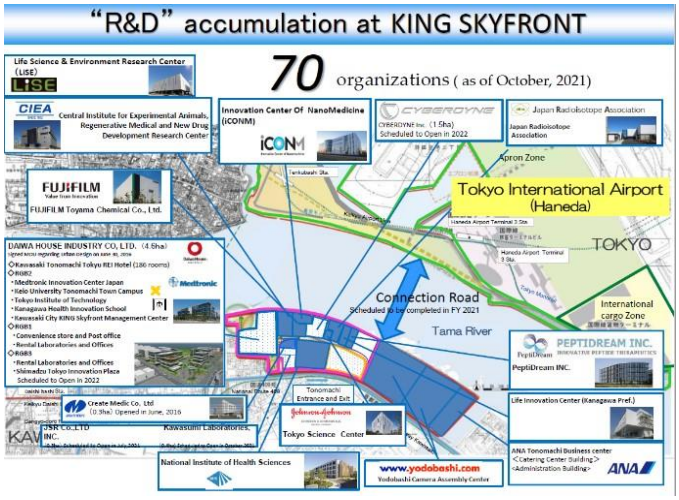


Figure 5. King Skyfront

From a city council's perspective, Mr Tetsuya Majima introduced how the City of Kawasaki developed the King Skyfront as the Kawasaki Innovation Gateway (Figure 5). Having attracted 70 organisations as of 2021, the King Skyfront has become an open innovation base that creates new industries from the world-leading research and development (R&D) in the life science field.

Apart from Japanese science parks, Australian academics and practitioners also shared their insights into science parks in Australia. As the Chair of the Board of the South Australian Genomics Centre, Ms Yvette van Eenennaam showcased the Adelaide BioMed City (Figure 6), an innovation district for a broader ecosystem of healthcare and medical technologies in South Australia. Unlike some standalone science parks, this innovation district consists of multiple bio-med developments, including the Australian Bragg Centre, Women's

and Children's Hospital, Trinity City, and the Bio-Hub. Besides a healthcare-focused innovation ecosystem, Australian science parks in aerotropolis developments were introduced by Dr Mirjam Wiedemann, who especially highlighted the importance of talents in the development of aerotropolis innovation hubs.

Figure 6. Adelaide BioMed City

Based on a case study of the Adelaide Technology Park, Professor Ying Zhu answered a long-lasting question about science parks: What affects the innovation-facilitating role of science parks? This study found the paradoxical nature of both positive and negative aspects of firms' strategies that cope with obstacles such as the lack of funding for R&D and weak policy on IP protection in an innovation-hub ecosystem. These obstacles hinder the collaboration on innovation and strengthen the effect of economic uncertainty on companies' short-term survival orientation (Figure 7).

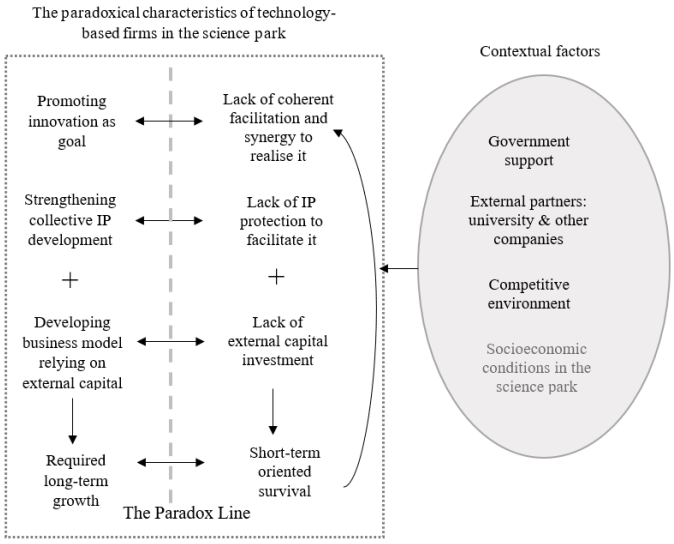


Figure 7. The Paradoxical Model

Universities: The Facilitator of Innovation Hubs

While taking science parks as the central of innovation-hub ecosystems, Japanese researchers stressed the important role of universities in facilitating innovation hubs. In this two-day dual-venue forum, Professor Tohru Yoshioka-Kobayashi demonstrated how the resource constraints of a university-based ecosystem might be solved by star scientists in the university (Figure 8). According to Professor Yoshioka-Kobayashi, star scientists can produce a significant number of patents and publications and attract many talented students, which will allow for the innovation of entrepreneurs in an ecosystem. This argument was supported by research findings of Professor Koichi Sumikura and his co-authors.

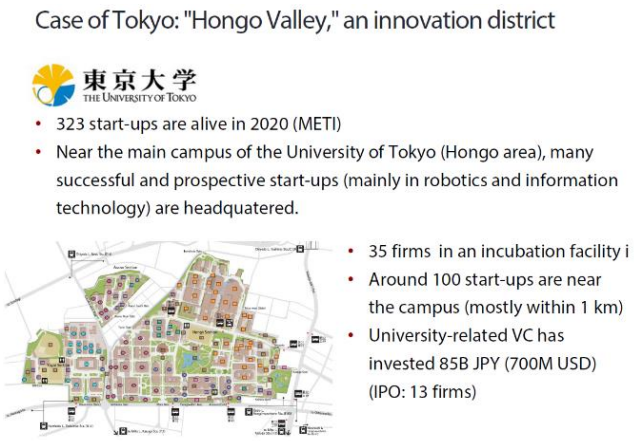


Figure 8. Hongo Valley

Likewise, Professors Michi Fukushima and Noriko Taji presented their findings on the role of universities in fostering innovation entrepreneurs in innovation-hub ecosystems. While Professor Fukushima focused on universities per se, Professor Taji took universities as one of the three support systems of innovation hubs. Besides universities, she illustrated how universities worked together with incubators and governments to facilitate innovation hubs.

Policymaking, Research, and Practice of Science Parks

In addition to these individual presentations, a panel of academics and practitioners in Australia (Figure 9) shared thoughts with their Japanese counterparts on questions, including: What should be part of the role of science parks in facilitating innovation and entrepreneurial businesses? What are the challenges and the barriers to innovation-facilitating role of science parks? What are government policies and policy impacts? What are the missing ingredients of a successful science park? What should be key


Figure 9. Panel of Science Park Experts

performance measures for a science park? While responses to these questions were not the same on the Australian and Japanese sides, the panel discussion provided insightful ideas about science parks in both countries, which inspired policymakers, academics, and a broad audience who attended the Forum and watched the recordings on the Forum's official website (https://ajf.unisa.edu.au/).

Worldwide Impacts

Despite its focus on Australian and Japanese science parks, the Forum has attracted international attention and shown influences beyond the two countries because of the dynamic profile of presenters and their expertise in innovation-hub ecosystems.

Table 1.
The Profile of Presenters

Country	Presenters
Australia	12
Japan	10
Europe	1
Total	23

Industry	Presenters
Policymaker	4
Academic	14
Practitioner	5
Total	23

Among 23 presenters (including keynote speakers and panellists) on the Forum (Table 1), 12 were from Australia, ten were based in Japan, and one presenter came from Europe. Also, 14 presenters are academics in Australian, Japanese, and European universities, respectively. Besides the organiser and partner universities (i.e., University of South Australia and Waseda University), these universities include Keio University, University of Oslo, National Graduate Institute for Policy Studies (Japan), Hitotsubashi University, Hosei University, and Tohoku University. Moreover, the policymakers were from the Department for Innovation and Skills (South Australia), the City of Adelaide, and the City of Kawasaki. The science-park practitioners came from Adelaide BioMed City, Tsuruoka Science Park, Adelaide Technology Park, and Tonsley Innovation District.

Following multiple rounds of Internet promotion on public media (LinkedIn, Facebook, and Instagram) and by professional associations (Academy of International Business, Regional Studies Association, International Management Division of AOM, Technology and Innovation Management of AOM, Strategic Management Division of AOM), the Forum attracted more than 110 participants from 15 countries other than Australia and Japan (Figure 10).

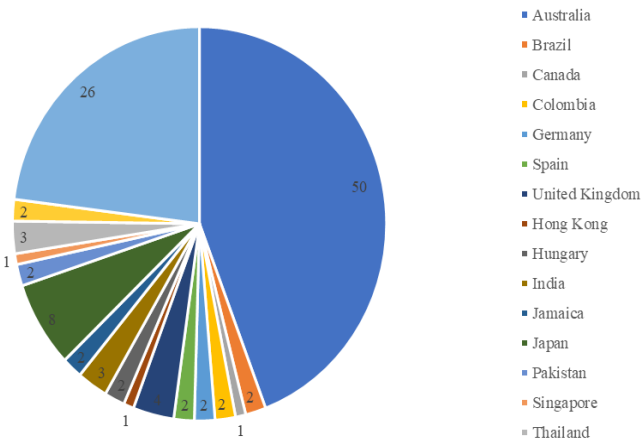


Figure 10. Registered Participants by Countries

Furthermore, besides participants online and in-person during the event on 29 and 30 November 2021, a large number of participants visited the Forum's official website to read

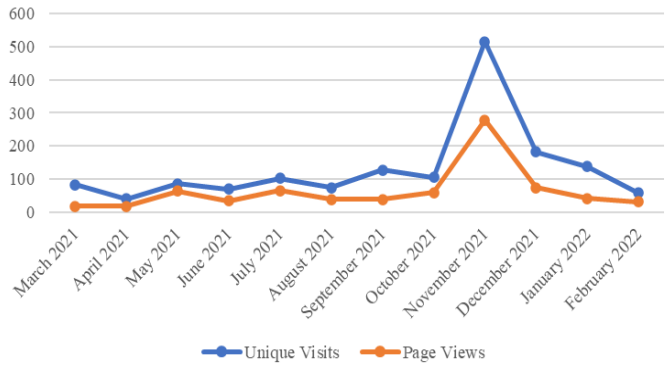


Figure 11. Webpage Traffic of the Official Website

proceedings and watch presentation recordings. Thus, although the Forum was held for two days with over 110 participants, it attracted more than 500 visits in November and 300 in the following two months. In addition, some audience has been visiting the official website continuously to access the Forum (Figure 11), showing its long-term influences.

Apart from visitors to the Forum's official website, the dialogue among Australian and Japanese policymakers, industries, and researchers has attracted public attention via professional associations and multiple social media. Specifically, the Forum was promoted in five associations, which have a total of 16,000 members around the world (Table 2). Also, the Forum's public media channels have accumulated more than 700 followers and around 10,000 interactions publicly (Table 3).

Table 2.
Potential Audience Reached via Professional Associations

Professional Associations	Num. of Members Worldwide
Academy of International Business	over 3,400
Regional Studies Association	over 1,500
International Management Division of AOM	2,337
Technology and Innovation Management of AOM	3,438
Strategic Management Division of AOM	5,795

Table 3.
Followers and Interactions on Social Media

Social Media	Handles	Followers	Posts	Prox. Num. of Likes	Prox. Num. of Views
LinkedIn	Australia-Japan Forum on the Innovation-hub Ecosystem	647	30	300	9,000
Facebook	Australia-Japan Forum	36	31	300	not available
Instagram	australia_japan_forum	98	32	300	not available

Conclusion and Future Paths

Science parks are a vital force of an innovation ecosystem, which facilitates the business landscape for technological advancement, R&D and innovation of a region. The dialogue between Australia and Japan inspired conversation and discussion on possible approaches to developing both science parks and regional innovations. The Forum jointly held by Australian and Japanese experts have contributed documentary evidence of such innovation-hub ecosystems and indicated paths for future collaboration between the two countries. More important, the people-to-people connections between Australian and Japanese policymakers, industries, and researchers have improved the understanding of shared interests of the two countries, which facilitates future engagement in mutually interested fields such as innovation management, academic publications, regional policymaking, and tertiary education.

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