

Developing University Alliances to Enhance the Multilateral Cooperation of Higher Education in China -Based on the Survey of Belt and Road Aerospace Innovation Alliance

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ABSTRACT

University Alliances are formed to leverage education and research resources and share differentiated advantages within and beyond the alliances, so that universities are able to fulfil their functions and achieve the development goals with the support of these multi-lateral platforms. The alliances mainly consist of universities, with enterprises, research institutes and other organizations, which together foster the eco-system of promoting talent cultivation, research cooperation, knowledge transfer and technology applications. Responding to the Belt and Road Initiative, Belt and Road Aerospace Innovation Alliance (BRAIA) co-initiated by Northwestern Polytechnical University (NPU) and Chinese Society of Astronautics (CSA) in 2017 enhances substantial cooperation among members in the aerospace domain. The paper introduces how BRAIA explores its unique and effective working mechanism, and tackles with the global crisis and challenge, including what are caused by COVID-19.

Keywords: *University Alliance, BRAIA, Multilateral Cooperation, Belt and Road Initiative.*

1. INTRODUCTION

International communication and cooperation have been hampered by COVID-19 outbreak world widely in 2020. The development of global Higher Education (HE) has also been affected to different extents from various aspects, including student and faculty exchange, academic communication, research cooperation, etc.

In such a less stable and less reassuring world, the efficient and effective ways of collaboration are highly demanded, not only to compensate for the negative impact caused by less travels and face-to-face meetings in the world, but also to respond to the new trends and needs in the post-pandemic era.

Universities are also forced to review and reconsider their current strategies and working agendas, especially reflecting the way of continuing and strengthening international cooperation when the global mobility is being heavily reduced.

China has become an important part in the HE world. Chinese universities have moved up forward quickly in recent ten years in various world universities rankings,

which reflects that universities in China are increasing their international reputation while improving their global competitiveness. The development can be explained for a few major reasons: (1) China's fast-growing economy needs more qualified human resource to sustain its further development, meanwhile, the growth of economy provides the strong financial support to the development of universities. (2) Chinese government is forming the consistent and persistent opening-up strategy despite of various challenges, including COVID-19. (3) Enhancing the win-win cooperation becomes one of the most essential working agenda items in the national guidelines for developing education in the new era. (4) Developing university alliances has been specified and taken as one of the most meaningful approaches to broaden and deepen the HE cooperation in the world, meanwhile, also enable China to participate in global education affairs and contribute to the development of global education governance more [1].

University alliance often refers to a loose multilateral cooperation organization formed by more than three universities with common strategic goals on the basis of voluntary and equal consultation, while complementing

each other, sharing resource, responsibilities and benefits, learning from each other and achieving a common development and optimal cooperation results.

Different from bilateral cooperation, multilateral cooperation via university alliance has its own complexity. On one hand, more participating parties leads to a higher-level difficulty of coordinating various interests from each party in order to achieve agreements. On the other hand, the efficiency and effectiveness of multilateral cooperation are often being argued, especially when a longer negation and decision-making process are involved.

Despite its complexity, university alliance building in recent years, has become a persistent phenomenon and a very important platform for universities to attract high-quality educational resources from overseas and introduce globally advanced curriculum and teaching materials. The multilateral cooperation platform and mechanism among universities is demonstrating its increasing values and importance by bonding with and broadening partners who share the common goal and interests from all over the world.

The last decade witnesses many university alliances initiated in China. Some of them are mainly targeting bilateral cooperation, including Association of Sino-Russian Technical Universities (ASRTU); some of them aim to connect partners sharing geographically intimacy to strengthen the multilateral cooperation, including University Alliance of the Silk Road (UASR); some of them balance the width of multilateral cooperation and depth of bilateral cooperation via choosing the focused areas commonly interested by members, including Belt and Road Aerospace Innovation Alliance (BRAIA).

In 2017, BRAIA was co-initiated by Northwestern Polytechnical University, China (NPU) and Chinese Society of Astronautics (CSA) in 2017. The alliance is to build an international platform for enhancing the cooperation on aerospace talent cultivation, research and technology development and applications to serve the purpose of making a brighter future for humankind by peaceful use of aerospace technology.

This paper reviews the development of BRAIA and studies its practice from different perspectives, including its governance and management structure which are able to get members highly involved and deeply engaged; the approaches of initiating and promoting substantial research cooperation among members; the responding of various alliance members to COVID-19, etc. The study is examined and future explored with the survey results and feedback obtained from the alliance members. This paper offers a real case study to understand the challenges of building and developing university alliances, and make suggestions on the relevant solutions.

2. GOVERNANCE AND ORGANIZATION

The governance and operation of university alliances are different from those of university themselves. All the members of the alliance are independent and equal. Opinions from each member should be equally considered and evaluated. Hence, it is almost impossible to have the top-down decision-making process as effectively as that in universities. Communication and Negotiation become the very important way to make the consensus in the alliance, which often consumes more efforts especially when the alliance has a big number of members. Hence, the decision-making mechanism and process, together with the communication mechanism and process are very critical to the development of alliances, part from developing the alliance with cooperative members [2].

The critical decisions are made by all BRAIA members in the Annual General Assembly and Council Meeting [3]. The interactions and connections of BRAIA members are often enhanced by participating various alliance events, which have been organized and held in China, Egypt, Italy, Spain and Pakistan [4].

2.1. Alliance Members

BRAIA, as a university alliance with the focused areas of aerospace, attracts universities, enterprises, research institutes and international organizations to join. The 48 initial BRAIA members include universities, research institutes, enterprises and academic organizations from 11 countries in 2017. Today, BRAIA has become an alliance with 69 member units from 22 countries, including Algeria, Argentina, Australia, Bangladesh, Belgium, Cameroon, China, Egypt, France, Italy, Malaysia, Mexico, Nepal, Nigeria, Pakistan, Poland, Russia, Spain, Tunisia, UK, Ukraine and USA.

The increasing number of BRAIA member units proves the effectiveness of the alliance's work, and also demonstrates the improving impact of BRAIA in the world. Meanwhile, it is noted that the increasing number of the alliance members also has its two-side effects. On one hand, it means that the alliance provides a wider platform to cooperate; on the other hand, it also hints that the decision and consensus within the alliance could be less efficient and effective. In order to envision a balanced picture for the future capacity of BRAIA, the survey was done in June 2020 in the alliance. A targeted scale of BRAIA therefore can be considered and used as a guideline for BRAIA to balance its scale and quality of the development. The specific question is about the appropriate targeted scale of BRAIA in the coming five years. As indicated in Figure 1, the survey result shows that 51.47% interviewees suggest the ideal scale of BRAIA is about 100 members; 35.29% interviewees prefer 150 members; 7.35% interviewees choose about

200 members or more and 5.88% interviewees have other different opinions.

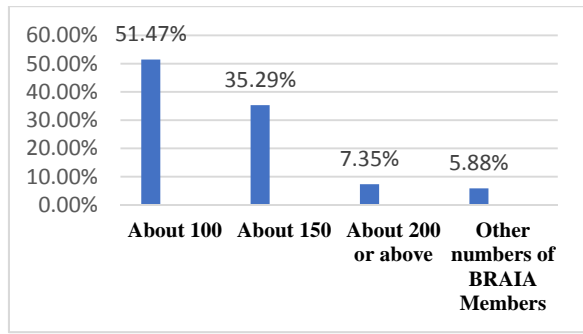


Figure 1 The expected number of BRAIA's members in coming 5 years

According to the above survey, the increasing trend of the numbers of BRAIA members along the years is predicated in the Figure 2. Approximately, the number of BRAIA members can reach 150 by 2030.

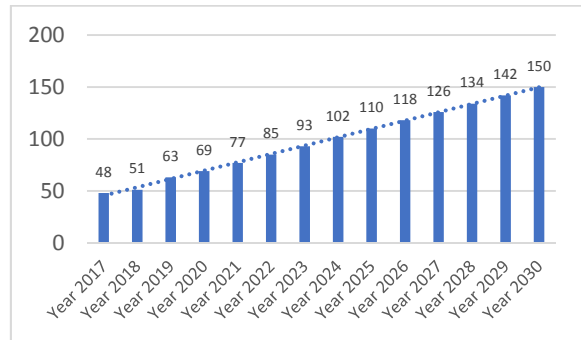


Figure 2 The increasing trend of the numbers of BRAIA members (simulated)

2.2. Secretariat's Central Role

University alliance is an organization in which each member is connected and bonded with no compulsory requirements. Hence, the secretariat role becomes very essential in terms of leading and serving the alliance in the daily operation.

Taking BRAIA as an example, NPU serves as the permanent secretariat of the alliance since the establishment of BRAIA. The secretariat office is formed with the dedicated team, which is responsible for coordinating all members to make the strategic plan and implement it. Furthermore, expanding the networking of the alliance, developing new members, promoting the global impact, organizing alliance events, reviewing and reporting the progress, initiating new cooperative programs and proposing management regulations and organizations of the alliance are also very important responsibilities of the secretariat.

The quality and devotion of the secretariat towards the alliance affairs have an important impact on the engagement and cooperation among the members and external partners. Understanding the satisfaction of the

members on the secretariat's work is very valuable for the secretariat to improve its future work. In the survey, the wiliness of recommending BRAIA to cooperation partners and promoting BRAIA events to fellow students or colleagues is investigated. More than 72% BRAIA members strongly recommend BRAIA to their cooperation partners and promote BRAIA events to the fellow students/colleagues as shown in Figure 3.

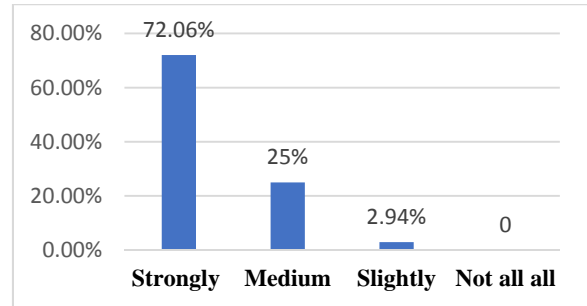


Figure 3 Promotion and recommendation from BRAIA members to others

2.3. Regional Development Centres' Impact

To expand BRAIA's global footprint and improve the regional impact, setting up BRAIA Regional Development Centres (RDCs) turned to be very important. In 2019, National University of Sciences and Technology, Pakistan (NUST) became the 1st BRAIA RDC in South Asia. This RDC set the work priorities for BRAIA. The first work priority of this RDC is to demonstrate the academic leadership by developing contemporary aerospace education strategies. The second priority is to build capacity by improving professional competencies, cultivating talents, collaborative environment. The third is to provide technological support by developing sharable resources that respond to regional requirements. The fourth is to conduct collaborative research by identifying collaborative projects for institutions and promote interactions among BRAIA members. In 2020, the 2nd RDC of BRAIA was established and based in Military Technical College (MTC), Egypt.

RDC plays the important role in strengthening partnerships by identifying new local and regional partners, and networking with existing members. Apart from strengthening the alliance's impact in the regions, the essential mission of RDCs is to have stronger social and community engagement, helping the local society to develop the technology and people.

3. RESEARCH COOPERATION

3.1. Academic Committee

Reasons for universities, research institutes and enterprises to join the alliance include seeking for partners, making joint efforts on cultivating talents, investigating new research areas, co-developing new

technology, exploring applications and promoting the organizations, etc.

BRAIA has done the survey to look into the key driving factors to collaborate with BRAIA. According to the feedback illustrated in Figure 4, most of the interviewees consider carrying on research cooperation and knowledge transfer as the most important factors to collaborate with BRAIA. In order to enhance the research cooperation among the university alliance members, the alliance needs a dedicated organization to support the academic development of the alliance. BRAIA invites top-level scholars from member units to apply and compete for 9 seats of BRAIA Academic Committee. Scholars from BRAIA member universities, with different academic background and profound expertise are elected to guide the research cooperation within and beyond the alliance.

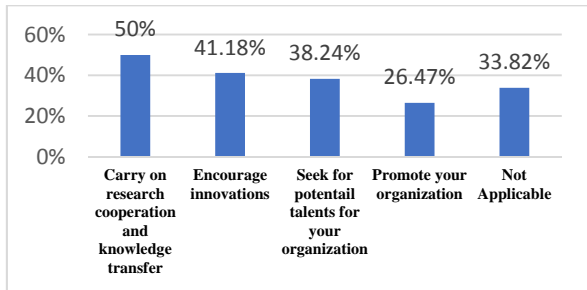


Figure 4 Key driving factors to collaborate with BRAIA

3.2. BRAIA Seed Fund Research Program

It is very critical to link members by working on research programs and projects. Regarding the willingness of participating in research projects initiated or funded by BRAIA, the feedback provided is also quite positive. In Figure 5, nearly 60% BRAIA member units express strong interests and willingness.

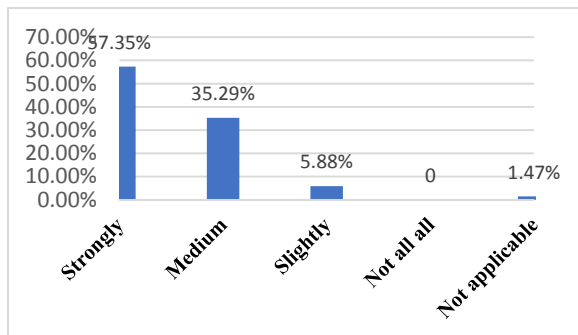


Figure 5 BRAIA members' willingness to participating in research projects initiated or funded by the alliance

Accordingly, BRAIA initiated the Joint Research Seed Fund Program in 2020. The program is set mainly to support academic staff and students of BRAIA member units to have international scientific research cooperation; support BRAIA member units to build joint research teams and conduct interdisciplinary,

fundamental, and strategic research; support the cultivation of aerospace talents by cooperating on research projects.

The program is managed centrally by the Permanent Secretariat of BRAIA, which is responsible for seeking for fund and collecting the views and suggestions from the BRAIA member units, inviting relevant experts and scholars to define the content of Call for Proposals and prepare the project guidelines. Once being approved by the academic committee of BRAIA, Call for Proposals and project guidelines are published to the BRAIA member units. Project proposals are submitted to the academic committee of BRAIA for review and approval. A working group should be set up for each project, responsible for ensuring the implementation of the projects as agreed. The project kick-off meeting, mid-term progress report meeting and project final review report meeting should be organized respectively during the year. Projects results are to be reviewed and evaluated as "excellent", "satisfied" and "unsatisfied". relevant suggestions and confirmation the project evaluation results are made by BRAIA academic committee members.

4. RESPONDING TO COVID-19

COVID-19 has changed the way of working and living in the world in both the short-term and long-term perspectives. According to BRAIA survey, nearly 1/3 BRAIA members think that COVID-19 has strongly affected their business in all aspects, and more than 45% BRAIA members agree at a medium level impact as in Figure 6.

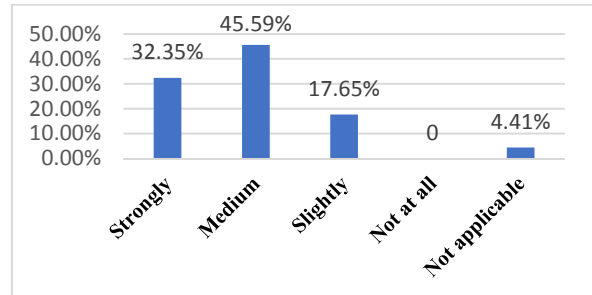


Figure 6 COVID-19's overall impact on BRAIA

As shown in Figure 7, more than 35% interviewees believe that the joint research collaboration in their organizations has been strong affected by COVID-19, and nearly 45% interviewees agree on a medium level impact on their research collaboration with other partners.

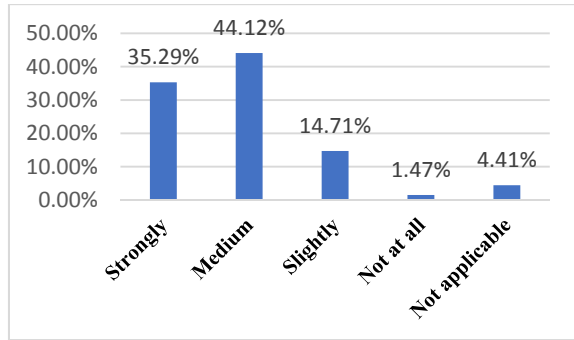


Figure 7 COVID-19’s impact on research cooperation of BRAIA member units

In view of COVID-19’s impact on international exchange of students and staff, nearly 2/3 of interviewees agree on a strong impact level, only about 10% interviewees think that the impact can be ignored. The survey also looks into the level that BRAIA member units’ teaching/researching/business has been moved on line due to COVID-19. Universities are taking actions to deal with the difficulties and challenges when the mobility, especially the international mobility is hampered. More than 60% BRAIA members acknowledged that their teaching/researching/business had been moved on line due to COVID-19 to a strong extent by the middle of 2020 as shown in Figure 8.

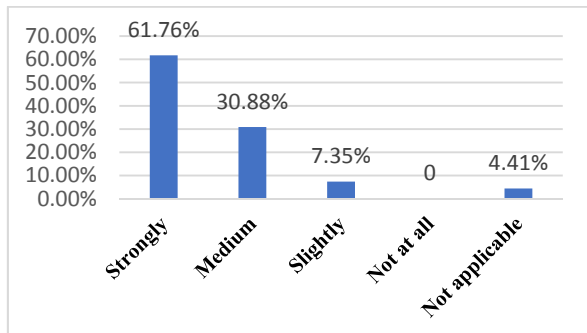


Figure 8 Moving business to the on-line mode

According to Figure 9, for those BRAIA member units which have not yet moved their teaching, learning and other businesses to the on-line form, the reasons provided are as follows: 58.82% interviewees think that some disciplines or modules cannot be taught online; 10.29% of them reply that there is no sufficient time to move everything online; 8.82% confess that it is lack of the financial resources to move everything online; 14.71% admit that technical expertise/hardware to move everything online is not ready; 17.65% interviewees recognize some of staff are lack of the expertise to teach online.

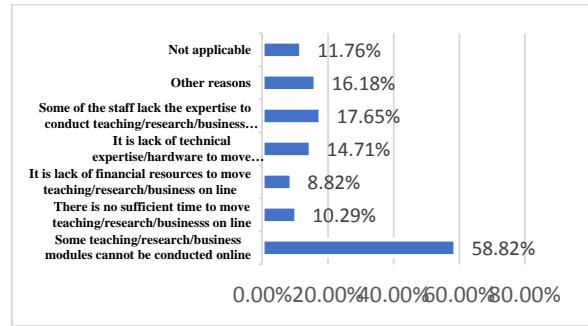


Figure 9 Reasons for not moving business to the on-line mode

5. CONCLUSIONS

In order to develop a university alliance which can really perform its function and achieve its desired targets, it is very essential for the alliance to serve for the needs of all alliance members and the society development, with the specific focus and targets. New challenges and arising problems would require the decision-making process, the communication mechanism and cooperation to be more efficient. Leaders with strategic insights and international experiences would be a necessity of coordinating all members. Only by working together on the joint programs or projects, can sustain the cooperation. An academic steering board is needed to provide the insights of research fronts and the guidance of cooperation areas of research. With the increasing of the alliance members, it is required to balance the scale and the quality of the alliance. Regional Development Centres may play important roles of expanding the platform and strengthening the regional cooperation without losing the focus.

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