

With the support of local partners, PolyU and The Boeing Company will establish an advanced aviation services research centre, deepening the University's commitment to the rapidly growing aviation industry.

在本地業界夥伴支持下，理大與波音公司合作成立一所先進的航空服務研究中心，加強大學對發展迅速的航空業的支援。

## Research Centre to boost aviation industry growth

### 航空服務研究中心 刺激業界發展



(from left) Director of PolyU's Industrial Centre Dr Stephen O'Brien, Chief Executive Officer of CASL Dr Angus Cheung, Chief Executive Officer of HAECO Mr Augustus Tang, Commissioner for Innovation and Technology Miss Janet Wong, PolyU Council Chairman Ms Marjorie Yang, Financial Secretary Mr John Tsang, PolyU President Prof. Timothy W. Tong, Vice President of Boeing Research and Technology (China) Dr Wu Dong-yang, Director and General Manager of HAESL Mr Richard Kendall and PolyU Vice President (Research Development) Prof. Alexander Wai

(左起) 理大工業中心總監區柏賢博士、中國飛機服務有限公司行政總裁張謙華博士、香港飛機工程有限公司行政總裁鄧健榮先生、創新科技署署長王榮珍女士、理大校董會主席楊敬德女士、財政司司長曾俊華先生、理大校長唐偉章教授、波音研究與技術(中國)副總裁伍東揚博士、香港航空發動機維修服務有限公司董事及總經理簡德恆先生及理大副校長(科研發展) 衛炳江教授

The deliberate combination of innovation and application is the cornerstone of PolyU's success, and deeply embedded into each new initiative it undertakes. Such was certainly the case recently, when it combined with Boeing and three local partners to establish Hong Kong's first Aviation Services Research Centre (ASRC).

Speaking at the signing of a Memorandum of Understanding (MOU) to establish the ASRC on 10 November, PolyU President Prof. Timothy W. Tong noted that it would "further enhance Hong Kong's leading position as a world-class service provider of MRO (maintenance, repair and overhaul) and steer the development of aviation related industries in Hong Kong and the South China region".

**善** 於結合創新與應用，是理大成功的基石，大學的各項新猷亦體現了這種理念。理大最近聯同波音和本地夥伴，設立全港第一所「航空服務研究中心」，便是近期的一個明顯例子。

十一月十日，理大校長唐偉章教授在簽署合作備忘錄的儀式上表示：「該中心有助進一步鞏固香港在提供世界級飛機維修工程(行內簡稱MRO)的領先地位，促進香港及華南地區航空相關行業的未來發展。」





Officials witnessing the signing included Mr John Tsang, the Financial Secretary of the HKSAR government, Miss Janet Wong, Commissioner for Innovation and Technology of the HKSAR government, Ms Marjorie Yang, PolyU Council Chairman, and key industry players. Prof. Timothy W. Tong, PolyU President, signed the MOU with Dr Wu Dong-yang, Vice President, Boeing Research and Technology, China, Boeing (China) Co. Ltd, and explained that the University would "be seeking funding from the Innovation and Technology Fund for both the initial and recurrent spending on the centre".

Speaking on behalf of the government, Financial Secretary the Honourable John Tsang commented, "we are delighted that PolyU is teaming up with the world's largest aerospace company to promote hi-tech innovation". The ASRC would, he said, "support our city's development and progress on several fronts".

To be initially housed in PolyU's Industrial Centre, the ASRC will help to train personnel, implement new procedures and develop innovative technologies to improve the safety, efficiency and capacity of the MRO industry. When fully established in its own location on campus, it will accommodate around 100 research and administrative personnel and numerous technical workshops equipped with state-of-the-art facilities to support its aviation and MRO research services. The ASRC's planning team has already started the groundwork for this next phase.

(back row from left) PolyU Council Chairman Ms Marjorie Yang, Financial Secretary Mr John Tsang and Commissioner for Innovation and Technology Miss Janet Wong witness the signing of MOU by PolyU President Prof. Timothy W. Tong (front row, right) and Vice President of Boeing Research and Technology (China) Dr Wu Dong-yang (front row, left).

(後排左起) 理大校董會主席楊敏德女士、財政司司長曾俊華先生及創新科技署署長王榮珍女士見證理大校長唐偉章教授與波音研究與技術(中國)副總裁伍東揚博士(前排左)簽署合作備忘錄。

在香港特別行政區政府財政司司長曾俊華先生、創新科技署署長王榮珍女士、理大校董會主席楊敏德女士及業界主要持份者的見證下，理大校長唐偉章教授與波音研究與技術(中國)副總裁伍東揚博士簽署了合作備忘錄。唐校長指，大學將尋求創新及科技基金撥款，資助中心初期及經常性的開支。

財政司司長曾俊華先生表示：「我們很高興見到理大與世界上最大的航空航天公司合作，促進高科技的創新發明。該中心將在不同範疇推動香港的發展和進步。」

該中心初期將設於理大工業中心內，並致力培訓專才、實施嶄新工序，以及開發創新技術，以提高飛機維修工程業界的安全性、效率和生產力。當中心在校園內建成後，它會容納約一百位科研和行政人員，以及眾多設備先進的專門工場，以支援其航空航天和飛機維修工程的研究服務。中心的策劃團隊已經開始着手籌備下一階段的基礎工作。

## Helping the aviation industry to soar

Explaining the importance of aviation not only to Hong Kong but to the whole nation, Dr Wu revealed that "China is one of the world's fastest-growing aviation markets". With a forecast of 1.5 billion passenger traffic in the country by 2030, "Boeing has estimated the need for 5,260 new airplanes in China by 2031 and that China will need 99,400 maintenance technicians to service this growing fleet". Indeed, the central government included aeronautics as one of the seven 'rising' industries in its 12th Five-Year Plan.

Prof. Tong commented that the ASRC was specifically established "to capture the opportunities of the blooming aviation market in China through leveraging the strengths of PolyU". The University was, he said, "a place where scientific discovery meets innovation and we aspire to make use of our discoveries innovatively in this centre to raise the standard of maintenance, repair and overhaul service in the aviation sector".

The main PolyU-Boeing partnership will be critical to that endeavour. Prof. Tong noted that the ASRC resulted from 20 months of discussion and six visits to PolyU by Boeing representatives. He also drew parallels between the two organizations, highlighting their very similar cultures, visions and missions. "We are both built on a foundation of innovation and aspiration," he said, "and are keen on leveraging our strengths and opening up new frontiers".

From Boeing's perspective, cooperation with PolyU is appealing given what Dr Wu described as the University's "strong focus on application-oriented R&D and its track record of developing innovations for industries". Voicing her company's enthusiasm about the agreement, Dr Wu said that "we are very excited about this opportunity of partnering with PolyU and other industry partners to jointly develop technologies and enhance capabilities that will support the sustainable growth of the aviation industry in China."

## 協助航天航空業起飛

伍博士解釋航空航天業對香港以至國家的重要性，她說：「中國是世界上增長最快的航空航天市場之一。根據預測，到二零三零年，全國將有十五億旅客流量。波音估計，到二零三一年，中國需要共五千二百六十架新飛機，以及九萬九千四百位維修技師，為這增長迅速的航機隊服務。」事實上，在中央政府的第十二個五年計劃中，航空航天業是七大新興產業之一。

唐教授表示，該中心是為了抓緊中國興旺的航空航天市場所帶來的機遇而設立，並且善用理大在這方面的優勢。他說：「大學是科學創新之地，我們期望善用該中心的創新發明，提高航空航天領域中飛機維修工程服務的水平。」

理大與波音的合作將是實現這期望的關鍵。唐教授表示，經過長達二十個月的討論，以及波音六次派員到理大參觀之後，雙方終於落實設立該中心。他指出，兩個機構有着相似的文化、願景和使命。「我們的基礎都是建立在矢志創新的抱負上，並且熱衷於善用自己的優勢，開拓新的領域。」

在波音的角度來看，與理大合作是個難得的機會。伍博士形容，理大著重應用為本的科研發展，加上它為工業界創新發明的驕人往績，令波音盼望積極參與合作計劃。她表示：「我們很期待這次與理大及其他業界夥伴的合作，不但可發展科技及提升實力，且支援中國航空業持續增長。」



“ We are very excited about this opportunity of partnering with PolyU and other industry partners to jointly develop technologies and enhance capabilities that will support the sustainable growth of the aviation industry in China.

我們很期待這次與理大及其他業界夥伴的合作，不但可發展科技及提升實力，且支援中國航空業持續增長。

Dr Wu Dong-yang, Vice President, Boeing Research and Technology, China, Boeing (China) Co. Ltd  
波音研究與技術(中國)副總裁伍東揚博士



“Other key industry players supporting the establishment of the ASRC included Cathay Pacific Airways, China Aircraft Services Limited (CASL), Hong Kong Aero Engine Services Limited (HAESL) and the Hong Kong Aircraft Engineering Company Limited (HAECO),” said PolyU Vice President (Research Development) Prof. Alexander Wai. All are world-class MRO providers that have collaborated with PolyU over the long term and that have shown further confidence in the University by being involved in the ASRC.

Dr Angus Cheung, Chief Executive Officer of CASL, said the company had long been cooperating with PolyU in the provision of aircraft maintenance and related training for students and young professionals.

Mr John Slosar, Chief Executive Officer of Cathay Pacific Airways, said that “it is fantastic to see the University partner with Boeing to open this new centre. This further reinforces the importance of Hong Kong as a premier aviation hub”. He was particularly pleased that “these kinds of efforts being undertaken here locally.”

Mr Augustus Tang, Chief Executive Officer of HAECO, said that as a leading MRO provider, his company “fully supports the establishment of Hong Kong’s first Aviation Services Research Centre, which will further strengthen and expand the capabilities of the industry, especially with the advent of state-of-the-art technologies in the manufacturing of aircraft and engines”.

Mr Richard Kendall, Director and General Manager of HAESL, added that his company was delighted to be participating in the ASRC’s establishment. He commented that “HAESL has a longstanding history of partnership with PolyU on training and through the provision of scholarships for its students”. Also significant was that the company had for many years been working with PolyU’s Industrial Centre “on the design and manufacture of innovative machinery and tools to support the development of large fan jet engine maintenance in Hong Kong, and the repair of engine components”. By joining this collaboration, he explained, “we have the opportunity to bring this existing collaboration to an even higher level.”

「其他支持設立該中心的業內主要公司包括：國泰航空公司、中國飛機服務有限公司、香港航空發動機維修服務有限公司及香港飛機工程有限公司。」理大副校長(科研發展)衛炳江教授說。它們全都提供世界級的飛機維修工程服務，並且與理大合作無間，對大學成立這中心更投下信心一票。

中國飛機服務有限公司行政總裁張謙華博士稱，該公司與理大合作已久，為學生及年輕專才提供飛機保養等相關培訓。

國泰航空行政總裁史樂山先生說：「大學與波音設立新研究中心的計劃令人振奮，這合作計劃將進一步鞏固香港作為先進航空中心的地位。」他更表示樂見本地集合各方力量為此而努力。

香港飛機工程有限公司行政總裁鄧健榮先生稱：「作為世界領先的飛機工程服務供應商，我們全力支持在香港設立首間航空服務研究中心。飛機和發動機的生產科技日新月異，中心的成立將有助進一步加強和擴闊本港業界的實力。」

香港航空發動機維修服務有限公司董事及總經理簡德恆先生表示，其公司能參與中心的成立，與有榮焉：「本公司多年來為理大學生提供培訓及獎學金，亦與理大工業中心合作多年，設計及製作創新的機器及工具，支援本港大型風扇發動機的保養及發動機組件的維修工作。透過參與航空服務研究中心的籌組工作，有望提升我們現有的合作關係至更高水平。」



Collaborating partners  
合作夥伴

## Building on experience

The Industrial Centre’s participation is a key element in the establishment of the ASRC. Boeing is particularly keen to leverage the Centre’s experience in aeronautical engineering. Dr Wu praised the Industrial Centre’s “impressive multi-disciplinary engineering capabilities and facilities” and how it “has also demonstrated successful applications of these capabilities to solve industry problems”. Aside from its work with CASL, HAECO and HAESL locally, the Centre has been influential both nationally and internationally. It supports space tool making for China’s lunar exploration programme, and has made tools for the Russian and European space agencies.

Yet even when taking that experience in account, the ASRC will be a major extension of the Centre’s involvement in aerospace projects. Dr Stephen O’Brien, Director of the Industrial Centre, said that it is “only too pleased to have taken part in the preparation and discussions with the participating parties for the setting up of the ASRC with Boeing”. He was aware there was much more still to do, and continued: “We look forward to our future collaboration and hope that our best efforts can contribute and help the aviation industry in Hong Kong and China.”

As Ms Marjorie Yang pointed out, aviation is heavily linked to other areas vital to Hong Kong’s economic growth, such as hospitality and tourism, mechanical engineering, design, and even textiles and materials science, just to name a few. The potential for flow-on effects from the establishment of the ASRC is huge, but Ms Yang noted that a “human resource supply chain” would be necessary to ensure the maximum benefit. Along this supply chain, she said, there would need to be created “many quality jobs, from technical support to design engineers”.

The establishment of the ASRC marks the beginning of accelerated efforts to create that supply chain, and will help to establish Hong Kong as an aviation education and research centre. This will be particularly important as Hong Kong’s aviation industry becomes ever more heavily intertwined with global markets and demand for aviation-related talent grows. Speaking of his company’s participation in the ASRC, Mr Augustus Tang, Chief Executive Officer of HAECO, said that the Centre would definitely help to “enhance the profile and appeal of the industry for the younger generation to become aircraft engineering professionals.”

“

This MOU on establishing an Aviation Services Research Centre is a groundbreaking initiative that will support our city’s development and progress on several fronts.

這份有關成立航空服務研究中心的合作備忘錄是一項新猷，將在不同範疇推動香港的發展和進步。

”

Financial Secretary John Tsang  
財政司司長曾俊華

## 累積經驗 向前邁進

工業中心的參與對設立航空服務研究中心至關重要，而波音亦希望應用工業中心在航空工程方面的經驗。伍博士讚揚工業中心擁有卓越的跨學科工程技能和完善的設施，並成功利用這些優勢來解決業界的困難。工業中心除了一直與本地的中國飛機服務有限公司、香港飛機工程有限公司及香港航空發動機維修服務有限公司緊密合作之外，更在國內和國際間甚具影響力。工業中心參與製造用於國家探月工程的精密工具，也曾為俄羅斯太空總署及歐洲太空總署製作精密的太空儀器。

然而，即使工業中心在航空工程方面的經驗豐富，籌備成立航空服務研究中心將是一項重大工程。理大工業中心總監區柏賢博士表示：「工業中心十分榮幸能與波音及各方洽談，參與籌組航空服務研究中心。我們期望同心協力，為本港及中國的航空業發展作出貢獻。」

楊敏德女士指出，航空業與其他行業息息相關，而對香港的經濟增長亦至關重要。這些行業包括酒店及旅遊管理、機械工程、設計，甚至紡織及材料科學等。設立航空服務研究中心的潛在連鎖效應巨大，但楊女士表示，要確保獲得最大的效益，人力資源供應鏈是必須的，也需要創造大量高質素的就業機會，從技術支援人員到設計工程師都是必須的。

該中心的成立標誌着各方共同努力創造這人力資源供應鏈，這將有助香港成為航空教育和研究中心。隨着香港航空業與全球市場的聯繫越趨緊密，加上航空相關專才的需求亦日漸增加，這方面的發展將越見重要。香港飛機工程有限公司行政總裁鄧健榮先生談到其公司參與設立該中心，他表示：「我們相信中心的成立將有助提升業界的地位，吸引更多年輕人才投身飛機工程業。」





## Looking to the Future

To give just one example of an industry development that will have broad repercussions for young engineering hopefuls, Financial Secretary John Tsang said that the Hong Kong government has "ambitious plans to increase the capacity of the Hong Kong International Airport to meet anticipated demand for passenger and cargo services". That expansion will create an abundance of opportunities for skilled personnel, "especially in the maintenance, repair and overhaul of aircraft and equipment".

The ASRC will help to define the career possibilities of those personnel and others like them. It would, as Ms Yang put it, "provide careers for our young people that are not just a way to make a living but to make a difference".

Prof. Timothy W. Tong indicated that PolyU is certainly keen to develop programmes in the areas of aeronautics. The University currently offers a Master of Science in Mechanical Engineering (Aeronautical Engineering) and a Master of Science in Mechanical Engineering (Aviation). These programmes cover elements of aviation and aeronautical engineering ranging from aircraft structure and design through to operations research in aviation.

Also on offer is an aviation stream of study as part of the Bachelor of Engineering (Honours) in Mechanical Engineering programme. Advanced elective subjects available in the final year of studies cover engineering composites, aircraft systems, aviation systems, and aircraft maintenance engineering, an area that is especially pertinent to the ASRC. Prof. Tong said that PolyU also has plans to expand its efforts at the undergraduate level by offering a specific "four-year degree programme in Aviation and Aeronautical Engineering".

Each PolyU initiative to expand the scope of its support for aviation services is another step toward fulfilling its mission of advancing knowledge and the frontiers of technology as society changes. With the increasing significance of the aviation industry to Hong Kong and mainland China's economic well-being, the ASRC is set to play an important role in shaping the extent of those changes. PolyU, Boeing and their industry partners have signed a landmark agreement that will have distinct repercussions for future generations. Ms Yang likened the new centre to an American Indian dream catcher, noting that it would focus "our young practical dreamers so that they can dream and make it happen." All achievement begins with a carefully shaped foundation of excellence.



Government officials, partners and guests show their support to PolyU at the MOU signing ceremony.  
政府官員、合作夥伴及嘉賓出席合作備忘錄簽署儀式，以示對理大的支持。

## 展望將來

這個行業的發展對年青一代的工程師影響深遠。財政司司長曾俊華先生表示，香港政府正積極計劃增加香港國際機場的容量，以應付乘客和貨運服務的預期需求量。這將為有專門技能的人才創造大量機會，尤其在飛機及零件維修保養工程方面。

航空服務研究中心將為他們開拓了很多發展事業的機會。就像楊女士所說：「為我們的年青人提供發展事業的機會，不單只為謀生，而且可以為社會帶來改變。」

唐偉章教授表示，理大積極在航空學的領域拓展課程。現時，大學提供機械工程學理學碩士學位課程(航空工程)，以及機械工程學理學碩士學位課程(民用航空)。課程教授的內容，涵蓋從飛機結構與設計到航空範疇的操作研究等航天及航空工程知識。

此外，理大亦在機械工程學(榮譽)工學士學位課程中教授航空領域的知識。學生在修讀課程的最後一年，可選修工程複合材料、飛機系統、航空系統，以及飛機維修工程等科目，這範疇尤其與航空服務研究中心息息相關。唐教授更表示，未來理大將計劃開辦一項四年制航天與航空工程學士學位課程。

理大的使命是要配合社會的變遷，推動知識創新和拓展科技前沿，它積極為航空服務提供支援，便是履行這方面的使命。航空業對香港和中國內地的經濟影響日趨嚴重，航空服務研究中心將擔當重要的角色，推動航空業的發展。因此，理大、波音和業界夥伴簽訂的合作協議，意義重大。楊女士將新成立的中心比喻作「美洲印第安人的夢捕手」，因為該中心將培育講求實效的年青夢想家，讓他們夢想成真。畢竟，任何成就都始於精心塑造的穩固基礎。◆