

**Project Title: How Can Giant Air Cargo Forwarders be Enhanced by Partnership with Airlines: A Utilisation of Unused Baggage Capacity Approach**

研究項目: 如何通過與航空公司協作來提升大型航空貨運公司的營運效益: 使用航空公司航班的剩餘空間方案

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**Funding Scheme: Research Grants Council – Faculty Development Scheme (FDS)**

**Project Period: From January 2021 to December 2023**

**Project Reference No.: UGC/FDS14/E03/20**

**Abstract**

Air cargo demand is expected to grow by 4.2% over the next 18 years owing to international trade, especially the popularity of e-commerce. <sup>1</sup>In 2017, a record US\$2.3 trillion was made in global retail e-commerce sales. It is forecasted that in 2021, the amount will be more than doubled to US\$4.9 trillion. As strong air cargo demand is anticipated, forwarding industries are expanding accordingly. Currently, many giant forwarders have their own aircraft to efficiently facilitate their operations, shorten the delivery lead time, and expand their service network level, e.g. DHL, UPS, and FedEx own more than 250, 260, and 650 aircraft, respectively. To survive under fierce market competition, they have to strive for excellence in delivery lead time and network coverage. Therefore, they also deliver by using flights operated by commercial airlines. In practice, they reserve a certain storage capacity from flights in commercial airlines in advance. However, the baggage capacity in an aircraft's belly is not always fully utilised because most passengers carry less than their baggage allowance. This unused baggage capacity can be exploited by air cargo forwarders for delivery. Motivated by this idea, the aim of this proposed research project is to investigate whether the operation of giant forwarders can be enhanced by partnership with airlines in utilising the unused baggage capacity. We focused on giant forwarders because they typically have their terminals at airports, which enables their cargo to be transported to airlines in a very short time. We believe that both airlines and air cargo forwarders will benefit from this partnership. This can provide airlines with additional revenue generated from the sale of unused baggage capacity. Giant air cargo forwarders can gain profit from the increased number of flights and storage capacity made available by the partnered airline. Moreover, their network coverage may also increase.

1. Boeing, World Air Cargo Forecast 2018–2037. <https://www.boeing.com/commercial/market/cargo-forecast/>

