

國立交通大學 102 學年度碩士班考試入學試題

科目：科技論文(5506)

考試日期：102 年 2 月 3 日 第 3 節

系所班別：管理學院-運輸與物流班組聯招 組別：運物聯招 第 1 頁, 共 1 頁

【不可使用計算機】*作答前請先核對試題、答案卷(試卷)與准考證之所組別與考科是否相符!!

[不得使用任何字典或翻譯設備]

1. 請將以下論文摘要(包含標題)翻譯成中文。(50%)

An Integrated Outbound Logistics Model for Frito-Lay Company: Coordinating Aggregate-Level Production and Distribution Decisions

In this paper, we describe research to improve Frito-Lay Company's outbound supply chain activities by simultaneously optimizing its inventory and transportation decisions. Motivated by Frito-Lay Company's practice, we first develop a mixed-integer programming formulation from which we develop a large-scale, integrated multiproduct inventory and vehicle-routing model with explicit (1) inventory holding costs, truck loading and dispatch costs, and mileage costs; (2) production, storage, and truck capacity limitations; and (3) direct (plant-to-store) and interplant (plant-to-plant) delivery considerations. Second, we present an iterative solution approach in which we decompose the problem into inventory and routing components. The results demonstrate the impact of direct deliveries on distribution costs and show that direct deliveries and efficient inventory and routing decisions can provide significant savings opportunities over two benchmark models, one of which represents the existing Frito-Lay Company system. We implemented our models using an application that allows strategy evaluation, analysis of output files, and technology transfer. This application was particularly useful in evaluating potential direct-delivery locations and inventory reductions throughout the supply chain.

2. 請將以下短文翻譯成英文。(50%) [摘錄自：運輸人通訊第 125 期，交通局專欄]

新竹市面積約 104 平方公里，屬於中型都會城市，人口密度在全國各縣市排名第 3 高，僅次於臺北市、嘉義市，先天條件適宜大眾運輸發展。新竹市市區公車營運自民國 61 年開始，因早期發展因素，新竹市公車路網衍生成以新竹火車站為核心之輻射狀路網。

新竹市私人運具持有比例較高，101 年度平均每千人汽車持有率約為 285 輛，高於全臺灣平均值之 249 輛。因公路系統便捷與機動車輛持有率高，長期不利大眾運輸發展。使用大眾運輸之意願亦因而受到影響，進而改以私人運具代步，形成大眾運輸使用率偏低之現象。