

A Distribution Management Model Integrating Distribution Requirements Planning & Vehicle Routin

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ABSTRACT

There are mainly three levels in logistic systems, i.e., plant, distribution center, and retailer, respectively. Distribution Requirements/Resource Planning (DRP I/II), adopting the basic concept from MRP, integrates each and every function of the entire logistic systems. Its primary concern focuses on the minimization of the total logistic cost including ordering, inventory, in-transit inventory, and transportation cost. For retailers, DRP can help maintain the inventory control. The distribution center collects the demand information from its retailer and car fleet would be sent out to satisfy retailers* demand. The routingplan can be obtained by VRP (Vehicle Routing Problem) algorithm. In the past, most of the research did not consider transportation cost in the distribution management. In this research, a integrated mathematicalmodel is built, where the transportation cost is included. In addition, routing information can also be generated for the operational purpose. The basic purpose of this research is to verify that a planning modelusing DRP and then VRP would incur higher cost than a model integrating both DRP and VRP in one mathematical model. A real example is used and the results agrees with our assumption.

Keywords : DRP,VRP,Logistics Systems

Table of Contents

封面內頁 簽名頁 授權書.....	iii	中文摘要.....	iii
.....iv 英文摘要.....	iv	.....vi 致謝.....	vi
.....vii 目錄.....	vii	.....viii 圖目錄.....	viii
.....xii 表目錄.....	xii	.....xiii 第一章	xiii
緒論.....	1	1.1 研究背景與動機.....	1
.....1.1.2 研究目的.....	1	1.2 研究目的.....	1
.....3 1.3 研究方法.....	3	1.3 研究方法.....	3
.....3 1.4 研究範圍與假設.....	3	1.4 研究範圍與假設.....	3
.....3 1.5 研究架構.....	3	.....5 第二章 文獻探討.....	5
.....10 2.1 配銷需求/資源規劃(DRP).....	10	2.1 配銷需求/資源規劃之定義.....	10
.....10 2.1.2 DRP之文獻探討.....	10	2.1.2 DRP之文獻探討.....	10
.....10 2.1.3 配銷總成本觀念.....	10	2.1.3 配銷總成本觀念.....	10
.....11 2.2 車輛途程問題(VRP).....	11	2.2 車輛途程問題之定義.....	14
.....14 2.2.1 車輛途程問題之定義.....	14	2.2.2 基本之車輛途程問題.....	14
.....14 2.2.2 基本之車輛途程問題.....	14	2.2.3 典型之車輛途程規劃數學模式.....	15
.....14 2.2.3 典型之車輛途程規劃數學模式.....	14	2.2.4 車輛途程問題之延伸.....	15
.....15 2.2.4 車輛途程問題之延伸.....	15	.....17 2.2.5 車輛途程問題之解決方法.....	18
.....17 2.2.5 車輛途程問題之解決方法.....	17	2.2.6 其他車輛途程問題相關之文獻.....	19
.....18 2.2.6 其他車輛途程問題相關之文獻.....	18	.....19 第三章 多層級配銷需求模式之建構.....	23
.....23 3.1 配銷網路.....	23	3.1 配銷網路.....	23
.....23 3.2 DRP計劃表之建立.....	23	3.2 DRP計劃表之建立.....	24
.....24 3.2.1 規劃參數.....	24	3.2.2 DRP計劃表.....	24
.....24 3.2.2 DRP計劃表.....	24	.....25 3.3 配銷需求數學模式之建構.....	27
.....25 3.3 配銷需求數學模式之建構.....	25	3.3.1 配銷需求模式成本函數.....	27
.....27 3.3.1 配銷需求模式成本函數.....	27	3.3.2 數學模式.....	28
.....28 3.3.2 數學模式.....	28	.....28 第四章 配銷系統車輛途程模式之建構.....	31
.....31 4.1 車輛途程表之建立.....	31	4.1 車輛途程表之建立.....	31
.....31 4.2 車輛途程問題數學模式.....	31	4.2 車輛途程問題數學模式.....	31
.....33 4.3 車輛途程問題啟發式演算法.....	37	4.3.1 所引用演算觀念之介紹.....	37
.....37 4.3.1 所引用演算觀念之介紹.....	37	4.3.2 分群演算法之作業流程.....	40
.....40 4.3.2 分群演算法之作業流程.....	40	4.3.3 路線改善階段.....	42
.....42 4.3.3 路線改善階段.....	42	.....46 第五章 整合配銷需求規劃與車輛途程問題之配銷管理模式.....	46
.....46 5.1 整合性配銷管理數學模式.....	46	5.1 整合性配銷管理數學模式.....	46
.....46 5.2 配銷管理模式之啟發式演算法.....	51	5.2.1 配銷需求規劃啟發式演算法.....	52
.....51 5.2.1 配銷需求規劃啟發式演算法.....	51	5.2.2 配銷需求規劃啟發式演算法演算架構圖.....	54
.....54 5.2.2 配銷需求規劃啟發式演算法演算架構圖.....	54	.....57 第六章 實例說明.....	57
.....57 6.1 案例概述.....	57	6.1 案例概述.....	57
.....57 6.2 參數計算.....	58	6.2 參數計算.....	58
.....58 6.3 原始配銷總成本計算.....	61	6.3 原始配銷總成本計算.....	61
.....61 6.4 配銷系統暨車輛途程模式之配銷總成本.....	62	6.4.1 DRP與VRP分別規劃數學模式之結果分析.....	63
.....62 6.4.1 DRP與VRP分別規劃數學模式之結果分析.....	62	6.4.2 整合性配銷管理數學模式之規劃結果分析.....	64
.....63 6.4.2 整合性配銷管理數學模式之規劃結果分析.....	63	6.5 結合配銷需求規劃與車輛途程問題啟發式模式之配銷總成本.....	65
.....65 6.5 結合配銷需求規劃與車輛途程問題啟發式模式之配銷總成本.....	65	6.6 成本比較與分析.....	66
.....66 6.6.1 DRP數學模式與啟發式演算法之比較.....	66	6.6.1 DRP數學模式與啟發式演算法之比較.....	66
.....66 6.6.2 VRP數學模式與啟發式演算法之比較.....	67	6.6.2 VRP數學模式與啟發式演算法之比較.....	67
.....67 6.6.3 DRP與VRP數學模式分別規劃與整合規劃之比較.....	68	6.6.3 DRP與VRP數學模式分別規劃與整合規劃之比較.....	68
.....70 第七章 結論與建議.....	70	7.1 結論.....	70
.....70 7.1 結論.....	70	7.2 建議.....	70
.....70 7.2 建議.....	70	7.3 實例心得.....	72
.....72 7.3 實例心得.....	72		

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