物流中心導入 RFID 之個案探討及中介軟體之發展

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摘　要

　　無線射頻辨識系統(Radio Frequency Identification, RFID)已被列為 21 世紀十大重要技術項目之一，全球各地廠商及研究機構均積極投入研發，而其中以供應鏈相關應用格外引人注目。物流中心在供應鏈中扮演居中策應之角色，對於上下游就彈性與速度不斷升高的要求，RFID 技術恰可能為因應方案之一。

　　現今企業大多將物流作業交由專業物流公司代為處理，物流委外也漸漸突顯第三方物流公司之重要性。在國內 RFID 應用尚不普遍的情況下，本研究針對國內某第三方物流公司為個案研究對象，探討 RFID 技術初期導入的相關議。其中，對於進貨和出貨作業，所帶來的衝擊與執行之因難處，提供問題因應之道，並擬定階段性策略與目標。尤其，對於目前各界相當關心的讀取率問題，本研究亦進行相當的實地測試。

　　另一方面，針對個案公司初期導入 RFID 之資訊系統之準備與開發，本研究以發展 RFID Reader 讀取資料的應用程式介面為概念，使前端 Reader 所讀取到之 Tag 資料，透過介面程式，達成與後端資訊系統或服務串接之目的。

　　RFID 技術對於物流中心有莫大的潛在效益，但在實務應用方面仍有許多問題有待克服。本研究以個案物流中心初期導入之經驗分享和 RFID 資訊系統之準備和中介軟體之開發為主題，提供相關業者，在初期導入 RFID 技術時參考之用。

關鍵字：無線射頻辨識技術(RFID)、物流中心、中介軟體

A Case Study on the Initiative of Radio Frequency Identification and the Development of Middleware at a Distribution Center

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Abstract

Radio Frequency Identification (RFID) has been listed one of the ten important technologies of the 21st century. Many companies and research institutions around the world are actively engaged in researching and developing among its applications. Using RFID in the various stages of the supply chain is especially outstanding. Particularly, distribution centers (DCs) play the central role in the supply chain. In connection with higher flexibility and speed claimed by suppliers and vendors, the technology of RFID may well be one of the solutions.

Nowadays, most enterprises outsource their logistic operations to professional logistic companies, significantly raising the importance of the third party logistics (3PL) DC. As the application of RFID is not prevailing at this time, this study takes one 3PL DC as the subject for a case study to probe into the related issues at the initial stage of the introduction of RFID. This study has evaluated impacts and foreseen difficulties for the current operations arising from the introduction of RFID. Moreover, this study also develops the strategies for the various stages of RFID introduction. In particular, about the problem of reading accuracy, which is concerned by all circles, we also conducted quite a lot of field tests.

On the other hand, focusing on the preparation and development of the information system for initial RFID introduction, based on the concept of Application Programming Interfaces (API), develop program to fetch the data from the RFID Reader and link the front-end system with back-end system or services.

Although RFID technology has immense potential benefits for DC, there exist many problems for practical applications needed to be resolved. This study provides the experiences of the introduction of RFID to DCs and of the preparation for the middleware and related IT system. These findings should be informative for those interested in RFID.

Keywords: Radio Frequency Identification (RFID), distribution center (DC), middleware.

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