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A Breakthrough in Traditional Garment Industry: The latest RFID and ERP Solutions

A representative from the Commerce, Industry & Technology Bureau has once said that RFID application systems would become more and more popular in global supply-chain management. In the meantime, there is a solution using RFID technology in production management while enhancing the ERP system, so that an enterprise can realize the benefits of automatic control, improved productivity, a shortened production cycle from management based on real time information.

當工商及科技局發言人表示，無線射頻識別（RFID）應用系統在全球供應鍊管理系統上的應用日趨普遍之同時，運用RFID技術在生產管理上，加強ERP系統使企業實現自動控制、提高生產率、縮短生產週期、提供數據化管理模式等多項效益，便成大勢所趨。

The name RFID (Radio Frequency Identification) is being associated with a few Chinese names which usually highlight its different features. These include Electronic Sensor Chip, Short-Distance Card, Sensor Card, Non-Contact Card, etc. In fact, RFID does have a unique feature – the non-contact automatic identification technology. Generally speaking, an RFID system consists of 3 parts – tag, reader and antenna. After the tag has entered the magnetic zone, the reader receives the signal and re-delivers it out. And by sensing the radio wave obtained from the non-current tag or the so-called passive tag, it then delivers the product information, which has been stored in the chip. It can also do so by actively transmitting the signals of the frequencies regarding the current tag and the so-called active tag. After the information is received by the reader and gets decoded, it will then be transmitted to the central information system for processing.

關於RFID（Radio Frequency Identification）它的中文譯名有無線射頻識別、感應式電子晶片或是近接卡、感應卡、非接觸卡…等，其特性爲非接觸式自動識別技術的一種。一般而言，RFID系統是由標籤（Tag）、讀取器（Reader）和天線（Antenna）三部分組成。當標籤進入磁場區域後，接收的讀取器發出信號，憑借感應無電源標籤或稱被動標籤（Passive Tag）的電流所獲得的能量發送出存儲在晶片中的產品信息，也可以透過主動發送電源標籤或稱主動標（Active Tag）頻率的信號，在讀取器讀取信息並譯碼後，送至中央信息系統進行有關的處理。

圖：標籤 Tag

As the manufacture industry becomes more globalized, the multi-factory supply-chain model has emerged. When several production lines are producing different products on one supply chain, it could generate loads of information and data to be exchanged, supplied and received.

隨製造業全球一體化之實行，“多廠生產”規劃之供應鏈(Multi-factory Supply Chains)模式亦應運而生。當想像多條生產規劃之供應鏈在進行同一批貨之生產情景時，很可能是同一時間有如山似海的資料及數據在交換、提供、收集….

The garment-manufacture industry always aims for new product development and efficiency in production. In past years, advanced computer technologies already facilitate new manufacturing operation and build up management tools. Today's manufacturers are looking towards more advances and benefits with their focuses shifted to many different types of networking tools.

製衣業一直都是追求產品潮流及生產效率，而電腦科技多年來亦是推動一些新效能生產及管理的發展動力。今天製造商取得進步及利益同時，目光亦轉向了各種各樣的網絡工具上；從用於複雜的庫存控制和供應鏈管理功能的RFID，到B2B的

高科技低成本，突破傳統工業
ERP + RFID將成強勢組合

These tools do enable them to seek better opportunities on more complicated areas working with RFID like inventory control and supply-chain management, as well as the B2B e-commerce transactions. However, while employing this latest technology, manufactures are facing a long-standing problem – how the new technologies can bring better coverage and practicality to the running of the enterprise.

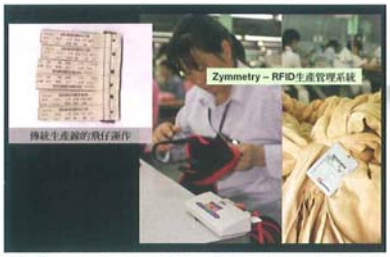
電子商貿交易。然而在利用其中一些新技術之前，製造商必需面對一個存在已久的問題：新技術在企業運作上的全面性及實用性。

Some common on-site difficulties and problems faced by garment factories:

- ※ Production workers at garment factories usually have a habit of keeping their job ticket (工票). This not only increases the factories' overtime expenses due to compliance requirement of extra compensation but also prohibits the factories from accurately estimating its works' productivity.
- ※ Low efficiency in production is mainly due to a lack of sense of quantification in the management's mind. It may also be the consequence of a lack of planning in production, a low utilization rate of equipment as well as a poor coordination of production departments.
- ※ Loss of control in monitoring. This finally causes serious production jam.
- ※ There is no database built up for in-depth analysis. In reality, a lot of factories already have various types of computerized technology networks in place for monitoring their production. These computerized processes and models do support a lot of different settings. This will only significantly increase the factories' maintenance costs. Furthermore, the factories will also find it very difficult in obtaining the necessary data for enterprise planning (some real-time statistical data regarding the production).

工場車間常見的混亂問題 ：

- ※ 車間一般工人常有儲工票習慣，此陋習除了令加班費用增加外，更會影響工廠不能準確掌握工人之產量。
- ※ 低生產效率，主要原因多是管理上缺乏嚴格意義的數量化，生產缺乏計劃性，設備使用率較低，人員安排不配合。
- ※ 監管失控，嚴重影響生產進度。
- ※ 缺乏數據作運籌分析，目前有不少的工廠已使用多種類型的電腦化技術網絡來控制生產運作，而這些電腦程序模組支持各式各樣的專有設定。 這種情況除增加了不少維護成本外，更在收集用於企業規劃的數據 (生產流程中的實時統計數據)成了困難。



圖：傳統生產線的飛仔運作，對比使用RFID記錄卡於WIP工序流程：取代生產線的紙印工票(飛仔)。

Therefore, a complete enterprise-information management and planning system, which is an ERP Solution, coupled with specific technology regarding the WIP production flows : RFID Factory Floor Solution, looks set to be an enterprise's silver bullet.

因此，一套全面的企業資訊管理規劃系統，包括製衣業ERP解決方案，配合於WIP生產流程中採用先進的RFID技術 – RFID 生產管理系統，便是企業的銀子彈。